Solar Storage Inverter

USER MANUAL

TE-5.6KW
TE-6.2KW

Important Safety Instruction

Please keep this manual for future use.

This manual contains all safety, installation and operating instructions for the 5.6KW/6.2KW Series all-in-one solar charge inverter.

Please read all instructions and precautions in the manual carefully before installation and use.

- ☞ (Non-safety voltage exists inside the all-in-one solar charge inverter.) To avoid personal injury, users shall not disassemble the all-in-one solar charge inverter themselves. Contact our professional maintenance personnel if there is a need for repair.

- ☞ Do not place the all-in-one solar charge inverter within the reach of children.

- ☞ Do not install the all-in-one solar charge inverter in harsh environments such as moist, oily, flammable or explosive, or heavily dusty areas.

- ☞ The mains input and AC output are high voltage, so please do not touch the wiring terminals.

- ☞ The housing of the all-in-one solar charge inverter is hot when it is working. Do not touch it.

- ☞ Do not open the terminal protective cover when the all-in-one solar charge inverter is working.

- ☞ It is recommended to attach proper fuse or circuit breaker to the outside of the all-in-one solar charge inverter.

- ☞ Always disconnect the fuse or circuit breaker near the terminals of PV array, mains and battery before installing and adjusting the wiring of the all-in-one solar charge inverter.

- ☞ After installation, check that all wire connections are tight to avoid heat accumulation due to poor connection, which is dangerous.

- ☞ The solar charge inverter is off-grid. It is necessary to confirm that it is the only input device for load, and it is forbidden to use it in parallel with other input AC power to avoid damage.

Contents

1. Basic information

1.1 Product overview and characteristics

5.6KW/6.2KW is a new solar storage inverter, which integrates solar energy storage & mains charging energy storage and AC sine wave output. Thanks to DSP control and advanced control algorithm, it has high response speed, high reliability and high industrial standard. There are four charge modes namely only solar power/mains power priority/solar power priority/mains power & solar power; inverter and mains outputs are selectable to meet different application needs.

①The solar charge module adopts the latest optimized MPPT technology, which can quickly track the maximum power point of the PV array in any environment to obtain the maximum energy of the solar panel in real time with wide voltage range of MPPT.

②AC-DC charge module adopts advanced control algorithm to realize full digital double closed-loop control of voltage and current, with high control accuracy and small volume, battery can be charged and protected stably and reliably with wide AC voltage input range, full input/output protection function.

③DC-AC inverter module based on full digital intelligent design adopts advanced SPWM technology, pure outputs sine wave, converts DC into AC. It is suitable for AC loads such as household appliances, electric tools, industrial device, electronic audiovisual, etc, The product adopts the segment LCD display design to display the operation data and state of the system in real time. The comprehensive electronic protection function ensures the safety and stability of the whole system.

Features:

1. Adopt full digital voltage and current double closed-loop control and advanced SPWM technology to output pure sine wave.
2. Two output modes, i.e. mains bypass and inverter output can achieve uninterrupted power supply function
3. Four optional charge modes: only solar energy, mains priority, solar energy priority and mixed charging
4. Advanced MPPT technology, with efficiency up to 99.9%
5. LCD screen design and 3 LED indicator lights dynamically display system data and operation states.
6. ON/OFF rocker switch can control AC output.
7. With power saving mode function, it can reduce no-load loss
8. Intelligent adjustable speed fan is adopted for efficient heat dissipation and extended system life.
9. With lithium battery PV and utility activation function, it supports lead-acid battery and lithium battery
10. Possessing multiple protection functions and 360° comprehensive protection.
11. Possessing complete short circuit protection, overvoltage and undervoltage protection, overload protection, back filling protection, etc.
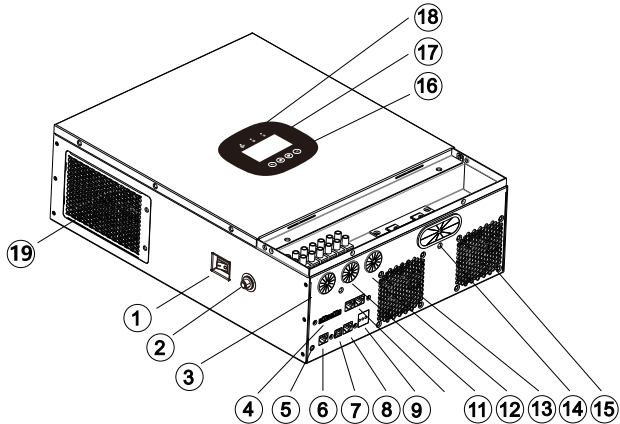
1.2 Basic system introduction

The figure below shows the system application scenario of this product. A complete system includes the following parts:

1. PV module: invert the solar energy into direct current energy and then charge the battery via the machine, or directly convert the solar energy into alternating current to supply power to the load.
2. Mains or generator: connected at the AC input, it can supply power to the load and charge the battery at the same time, If no mains power or generator is connected, the system can also operate normally. At this time the load power is supplied by the battery and PV modules.
3. Battery: the battery is to ensure the normal power consumption of the system load in case of no sufficient solar energy or mains supply.
4. Household load: it can be connected to various household and office loads, including AC loads such as refrigerators, lamps, televisions, fans, air conditioners, etc.
5.Inverter: the energy conversion device of the whole system. The specific system wiring mode is determined by the actual application scenario.
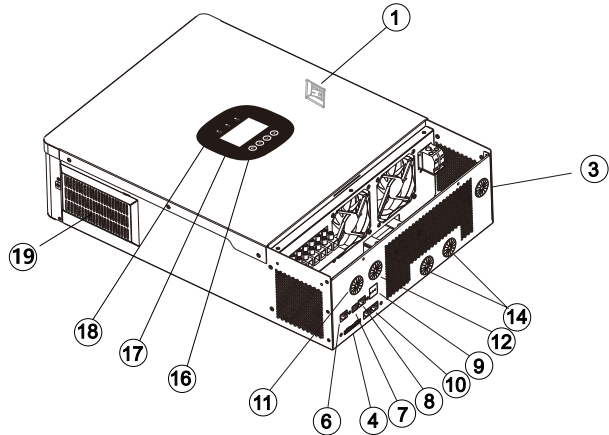

PV Panel

Generator

or

Utility

load

External Battery packs

Home Appliances
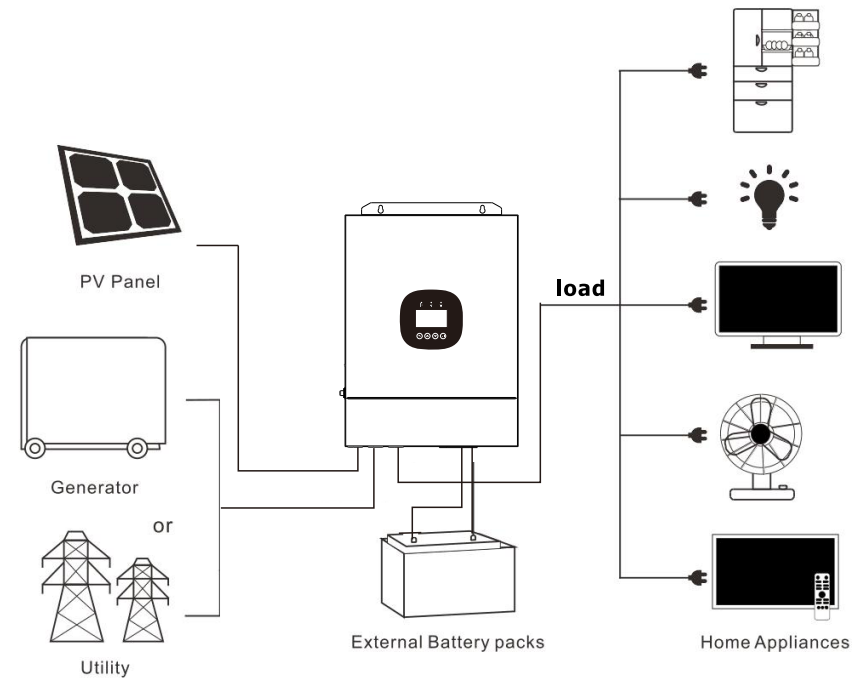
1.3 Appearance

5.6KW

6.2KW

1.4 Dimension drawing

5.6KW

6.2KW

①	ON/OFF rocker switch	⑪	AC input terminal
②	Overload protector	⑫	AC output terminal
③	PV terminal	⑬	Cooling fan
④	Equalisation port (parallel modules only)	⑭	Battery terminal
⑤	Grounding screw hold	⑮	Cooling fan
⑥	Rs485 communication port	⑯	Touchable buttons
⑦	USB port	⑰	LCD screen
⑧	WIFI port	⑱	LED Indicators
⑨	Dry contact port	⑲	Dust net
⑩	Parallel communication port (parallel module only)		

2. Installation instructions

2.1 Installation precautions

Before installation, please carefully read this manual and get familiar with the installation steps.

▷ Be very careful when installing the battery. Wear safety goggles when installing a lead-acid liquid battery. Once coming into contact with the battery acid, rinse with clean water timely.

▷ Do not place metal objects near the battery to prevent short-circuit of the battery.

▷ Acid gas may be generated when the battery is charged. So, please ensure good ventilation.

▷ When installing the cabinet, be sure to leave enough space around the all-in-one solar charge inverter for heat dissipation. Do not install the all-in-one solar charge inverter and lead-acid battery in the same cabinet to avoid corrosion by acid gas generated during battery operation.

▷ Only the battery that meets the requirements of the all-in-one unit can be charged.

▷ Improper incorrect connection and corroded wires may cause great heat which will melt the wire insulation, burn the surrounding materials, and even cause fires. So, make sure the connectors have been tightened, and the wires are secured with ties to avoid looseness of connections caused by shaking of wires during mobile application.

▷ The system connection wires are selected according to a current density of no more than 5 A/mm^2.

▷ Avoid direct sunlight and rainwater infiltration for outdoor installation.

▷ Even after the power is turned off, there is still high voltage inside the unit. Do not open or touch the internal components, and avoid related operations until the capacitor completely discharges.

▷ Do not install the all-in-one solar charge inverter in harsh environments such as moist, oily, flammable or explosive, or heavily dusty areas.

▷ Polarity at the battery input end of this product shall not be reversed, otherwise it may damage the device or cause unpredictable danger.

▷ The mains input and AC output are high voltage, so please do not touch the wiring terminals.

▷ When the fan is working, do not touch it to prevent injury.

▷ Load equipment input power, needs to confirm that this all-in-one solar charge inverter is the only input device, and it is forbidden to use in parallel with other AC power input to avoid damage.

2.2 Wiring specifications and circuit breaker selection

Wiring and installation must comply with national and local electrical codes.

Recommended PV array wiring specifications and circuit breaker selection: Since the output current of the PV array is affected by the type, connection method and illumination angle of the PV module, the minimum wire diameter of the PV array is calculated according to its short-circuit current; refer to the short-circuit current value in the PV module specification (the short-circuit current is constant when the PV modules are connected in series; the short-circuit current is the sum of the short-circuit currents of all PV modules connected in parallel); the short-circuit current of the PV array shall not exceed the maximum input current.

▷ **Refer to the table below for PV input wire diameter and switch:**

Models	Recommended PV wiring diameter	Maximum PV input current	Recommended circuit breaker type
5.6KW	6mm^2/10AWG	22A	2P—25A
6.2KW	6mm^2/10AWG	27A	2P—32A

Note: The voltage in parallel shall not exceed the maximum PV input open circuit voltage.

▷ **Refer to the table below for recommended AC input wire diameter and switch:**

Models	Recommended AC input wiring diameter	Maximum bypass input current	Recommended circuit breaker type
5.6KW	8mm^2/8AWG	40A	2P—40A
6.2KW	8mm^2/8AWG	44A	2P—50A

Note: There is already a corresponding breaker at input connection point of mains supply. Therefore,no breaker may be equipped.

▷ **Recommended battery input wire diameter and switch selection**

Models	Recommended battery wiring diameter	Rated battery discharge current	Maximum charge current	Recommended circuit breaker type
5.6KW	30mm^2 /2AWG	127A	100A	2P—160A
6.2KW	30mm^2 /2AWG	140A	120A	2P—160A

▷ **Recommended AC output wiring specifications and circuit breaker selection**

Models	Recommended AC output wiring diameter	Rated inverter AC output current	Maximum bypass output current	Recommended circuit breaker type
5.6KW	6 mm^2 /8AWG	24A	40A	2P— 40A
6.2KW	6 mm^2 /8AWG	27A	44A	2P— 50A

Note: The wiring diameter is for reference only. If the distance between the PV array and the all-in-one solar charge inverter or the distance between the all-in-one solar charge inverter and the battery is relatively long, using a thicker wire can reduce the voltage drop to improve system performance.

Note: The above parameter are only recommended wiring diameter and circuit breaker. Please select the appropriate wiring diameter and circuit breaker according to actual situations.

2.3 Installation and wiring

Installation steps：：

Step 1: Confirm the installation position and heat dissipation space,confirm the installation position of machine,such as wall surface;to install the machine,guarantee there is sufficient air flowing through the cooling fans of machine.At least reserve 200mm space at the left and right air outlets of the machine to guarantee heat loss through natural convection.Refer to the overall installation schematic above.

Warning: Danger of explosion! Never install the machine and lead-acid liquid battery into a same sealed space or in a sealed place with probable accumulation of battery gas.
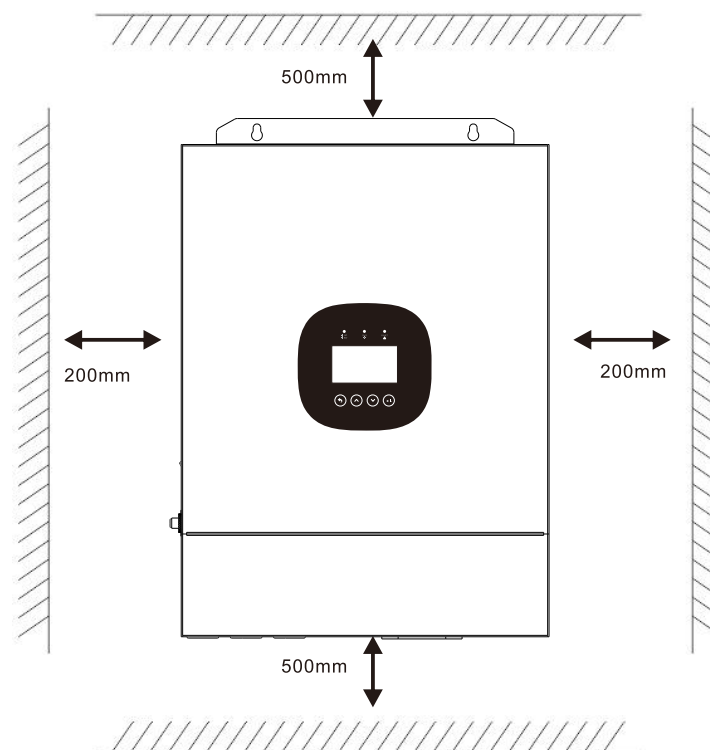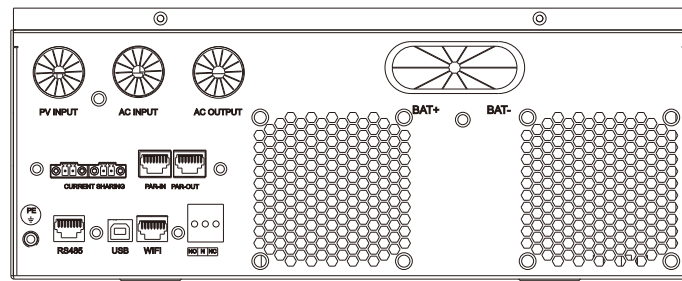
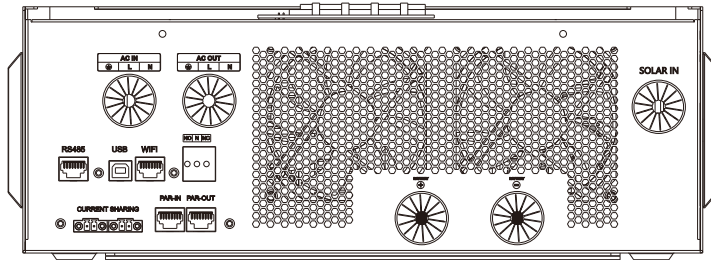**Step 2:** Remove the terminal protection cover
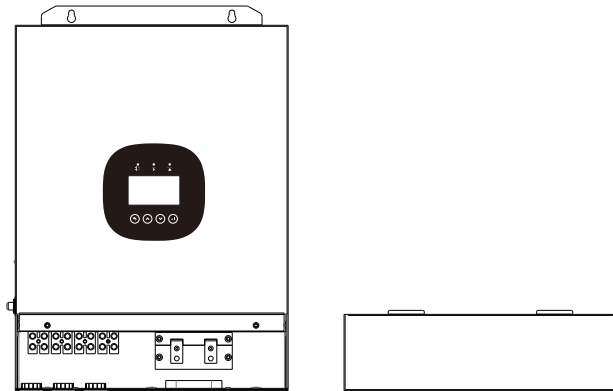

**Step3:** Wiring

5.6KW

6.2KW

AC input / output wiring method:

① Before AC input/output wiring, disconnect the external circuit breaker and confirm that the wire used is thick enough. Please refer to Section 2.2 "Wiring Specifications and Circuit Breaker Selection";

② Correctly connect the AC input wire according to the wire sequence and terminal position shown in the figure below. Please connect the ground wire first, and then the live wire and the neutral wire;

⏚: **Ground**　　**L：Live**　　**N：Neutral**

5.6KW
AC INPUT
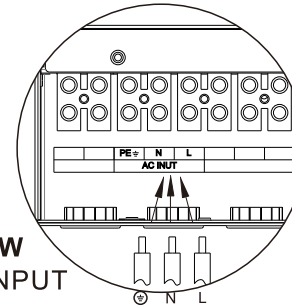
6.2KW
AC INPUT
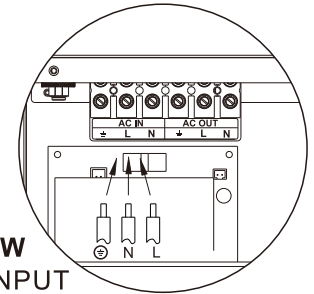
③ Correctly connect the AC output wire according to the wire sequence and terminal position shown in the figure below. Please connect the ground wire first, and then the live wire and the neutral wire. The ground wire is connected to the grounding screw hole on the cabinet through the O-type terminal.

⏚: **Ground**　　**L：Live**　　**N：Neutral**

5.6KW
AC OUTPUT
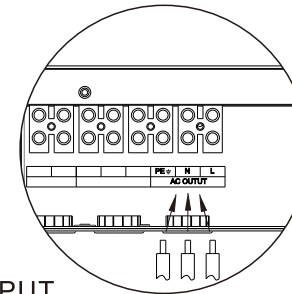
6.2KW
AC OUTPUT
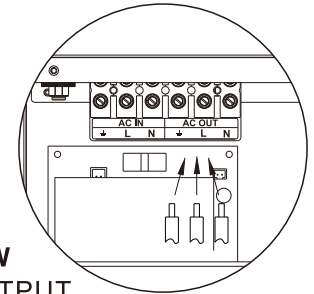
Note: The grounding wire shall be as thick as possible (cross-sectional area is not less than 4mm^2). The grounding point shall be as close as possible to the all-in-one solar charge inverter. The shorter the grounding wire, the better.

PV input wiring method:

① Prior to wiring, disconnect the external circuit breaker and confirm that the wire used is thick enough. Please refer to Section 2.2 "Wiring Specifications and Circuit Breaker Selection";
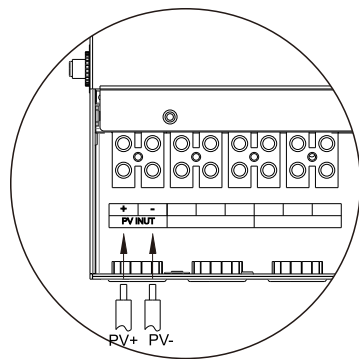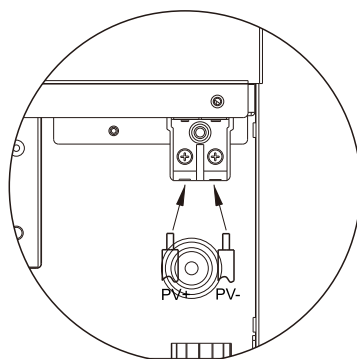
② Properly connect the PV input wire according to the wire sequence and terminal position shown in the figure below.

PV+: PV input positive pole   **PV-: PV input negative pole**

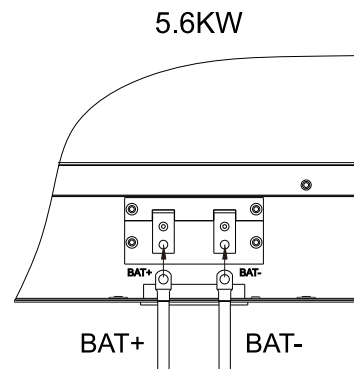5.6KW PV INPUT   6. 2KW PV INPUT

BAT wiring method:

① Before wiring, disconnect the external circuit breaker and confirm that the wire used is thick enough. Please refer to Section 2.2 "Wiring Specifications and Circuit Breaker Selection". The BAT wire needs to be connected to the machine through the O-type terminal. The O-type terminal with an inner diameter of 6 mm is recommended. The O-type terminal shall firmly press the BAT wire to prevent excessive heat generation caused by excessive contact resistance;

② Properly or connectly BAT wire in accordance with cable sequence and terminal shown in the figure below.

BAT+: Battery positive   **BAT-: Battery negative**

5.6KW   6. 2KW

BAT+   BAT-   BAT+   BAT-
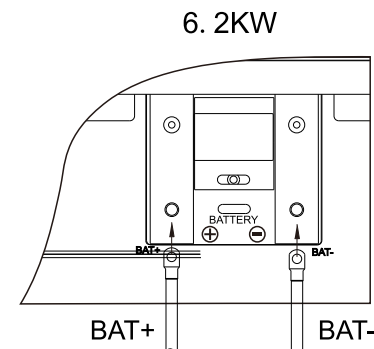
Warnings notices:

① input from mains supply, AC output and PV array may generate high voltage, Before wiring, make sure to break the breaker or fuse;

② During wiring process, make sure to pay attention to the safety; during the wiring process, please don't close the breaker or fuse. At the same time, guarantee that "+" and "-" poles of different parts are correctly connected with wires; a breaker must be installed at the battery end and selected based on chapter 2.2 "Wiring Specification and Breaker Type". Before wiring, make sure to break the breaker to prevent strong electric spark generated during wiring, At the same time, avoid battery short circuit during the wiring process; if the machine is in the area with frequent thunder, it is suggested to install an external arester at PV input terminal.

Step 4: Inspect whether the wires are correctly and firmly connected, especially whether the positive and negative input poles of the battery are correct, whether the positive and negative input poles of PV are correct whether AC input is inaccurately connected to AC output terminal.

Step 5: Install protective cap of terminal

Protective
cover screw
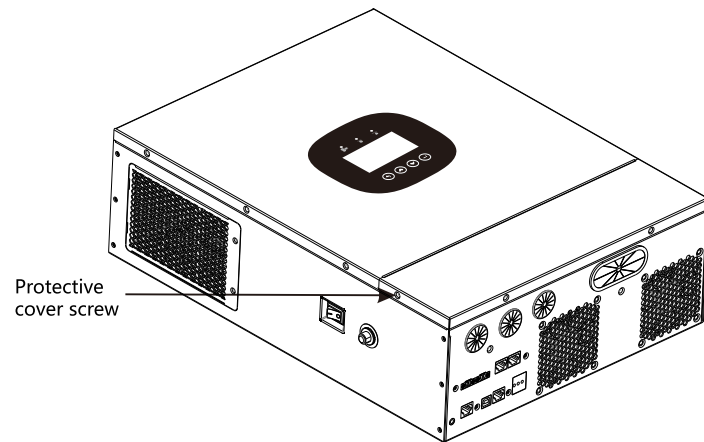
Step 6: Start the machine

At first close the breaker at the battery end, and then press the rocker switch at the lower left side of the machine to " ON" state, " AC/INV " indicator light flashes, indicating normal operation of inverter, Afterwards, close breakers of PV array and mains supply,. In the end, after AC output is normal, turn on AC load one by one to avoid protection action generated by great instant impact owing to simultaneous turn-on of loads. The machine operates normally in accordance with set mode.
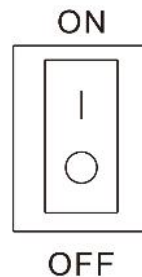
Note: if power is supplied to different AC loads, it is suggested to turn on the loads with great impact current,and then turn on the load with little impact current after the load operates stably.

Note: in case of abnormal operation of machine or abnormal display of LCD or indicator light, refer to Chapter 6 for troubleshooting.

2.4 Parallel machine wire connection

2.4.1 Introduction

1)   Up to six units connected in parallel.

2)   When using the parallel operation function, the following connecting lines (package accessories) shall be firmly and reliably connected:

Parallel communication line*1:   **Current sharing detection line*1:**

2.4.2 Precautions for connecting the parallel connecting lines

Warning:

1)   **Battery wiring:**

Parallel connection in single or three phase: Ensure that all all-in-one solar charger inverters are connected to the same battery, with BAT + connected to BAT + , BAT - connected to BAT -, and that the connection is correct with the same wiring length and line diameter before power on and start-up, so as to avoid the abnormal operation of parallel system output caused by wrong connection.

2)   **AC OUT wiring:**

Parallel connection in single phase: Ensure L-to-L, N-to-N and PE-to-PE connection for all all-in-one solar charger inverters, and that the connection is correct with the same wiring length and line diameter before power on and start-up, so as to avoid the abnormal operation of parallel system output caused by wrong connection. For specific wiring, please refer to 2.4.3 Wiring Diagram

Parallel connection in three phase: Ensure N-to-N and PE-to-PE connection for all all-in-one solar charger inverters. The L lines of all inverters connected to the same phase need to be connected together. But L lines of different phases cannot be joined together. Other connection precautions are the same as parallel connection in single phase. For specific wiring, please refer to 2.4.4 Wiring Diagram

3) **AC IN wiring**:

Parallel connection in single phase: Ensure L-to-L, N-to-N and PE-to-PE connection for all all-in-one solar charger inverters, and that the connection is correct with the same wiring length and line diameter before power on and start-up, so as to avoid the abnormal operation of parallel system output caused by wrong connection. Meanwhile, it is not allowed to have multiple different AC source inputs to avoid damage to the external equipment of the inverter. The consistency and uniqueness of AC source input shall be ensured. For specific wiring, please refer to 2.4.3 Wiring Diagram.

Parallel connection in three phase: Ensure N-to-N and PE-to-PE connection for all all-in-one solar charger inverters. The L lines of all inverters connected to the same phase need to be connected together. But L lines of different phases cannot be joined together. Other connection precautions are the same as parallel connection in single phase. For specific wiring, please refer to 2.4.4 Wiring Diagram.

4) **Wiring of parallel communication line**:

Parallel connection in single or three phase: Our company's parallel communication line is a DB15 standard computer cable with shielding function. Ensure the "one-in-one-out" rule when connecting each inverter, that is, connect the male connector (out) of this inverter with the female connector (in) of the inverter to be paralleled. Do not connect the male connector of the inverter to its female connector. In addition, make sure to tighten the parallel communication line of each inverter with self-contained end screws of DB15 to avoid the abnormal operation or damage of the system output caused by the falling off or poor contact of the parallel communication line.

5) **Wiring of current sharing detection line**:

Parallel connection in single phase: Our company's current sharing detection line is a twisted connection line. Ensure the "one-in-one-out" rule when connecting each inverter, that is, connect the current sharing line of the inverter with the current sharing green port of the inverter to be paralleled (choose one port from the two, and there is no mandatory sequence requirement). The current sharing ports of the inverter cannot be connected to each other. In addition, make sure that the red and black current sharing connection lines of each inverter are not manually exchanged, and make sure to tighten the lines with self-contained screws to avoid the abnormal operation or damage of the system output caused by abnormal parallel current sharing detection. For specific wiring, please refer to 2.4.3 Wiring Diagram.

Parallel connection in three phase: The current sharing detection lines of all inverters connected to the same phase need to be connected together. But the current sharing detection lines of different phases cannot be joined together. Other connection precautions are the same as parallel connection in single phase. For specific wiring, please refer to 2.4.4 Wiring Diagram.

6) Before or after connecting the system, please carefully refer to the following system wiring diagram to ensure that all wiring is correct and reliable before power on.

7) After the system is wired, powered on and in normal operation, if a new inverter needs to be connected, make sure to disconnect the battery input, PV input, AC input and AC output, and that all all-in-one solar charger inverters are powered off before reconnecting into the system.

2.4.3 Schematic diagram of parallel connection in single phase

1) The parallel communication line and current sharing detection line of the all-in-one solar charger inverter need to be locked with screws after connecting. The schematic diagram is as follows:
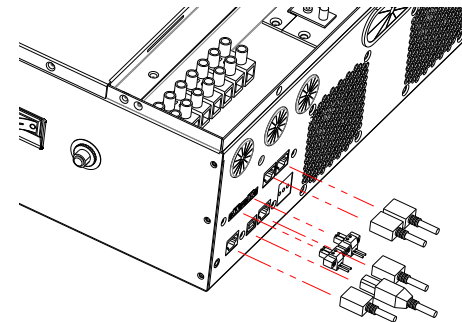
2)   In case of parallel operation with multiple inverters, the schematic diagram of parallel connection is as follows:

   NOTES : When connected in parallel, PAR-IN must be connected to PAR-OUT.

   a） **Two units connected in parallel:**

   b） **Three units connected in parallel:**
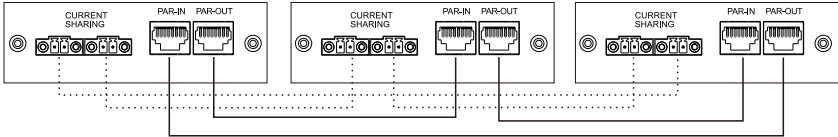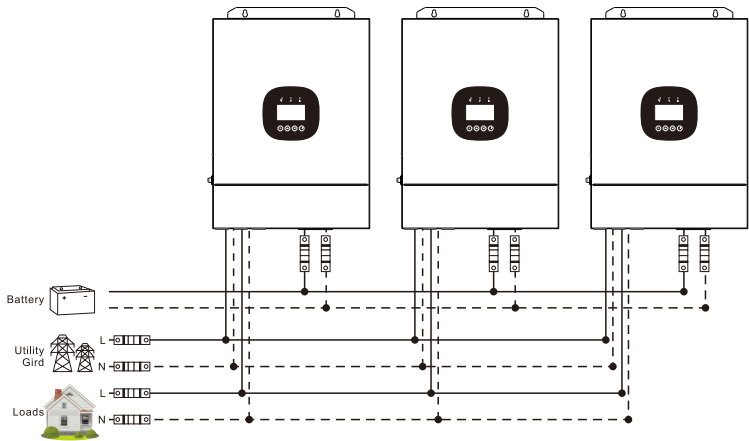
   c） **Four units connected in parallel:**
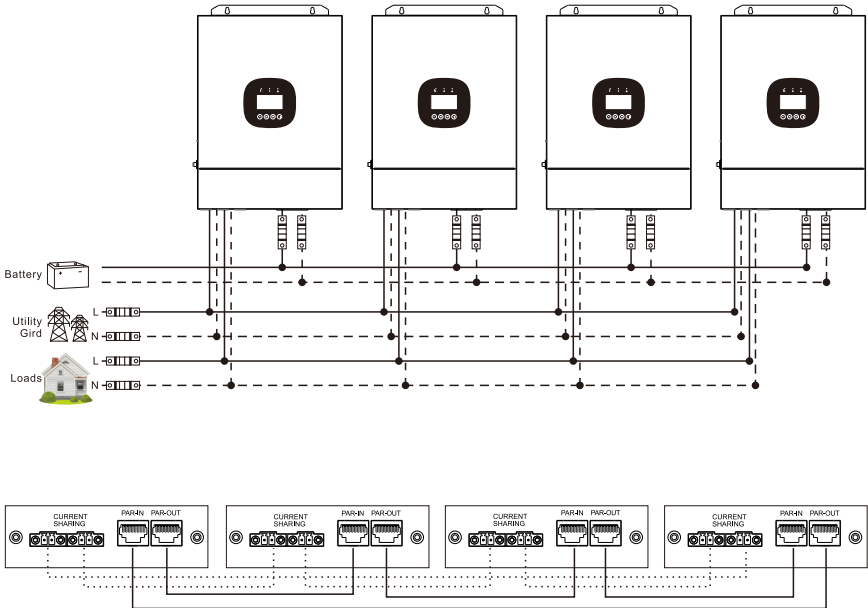
d）Five units connected in parallel:
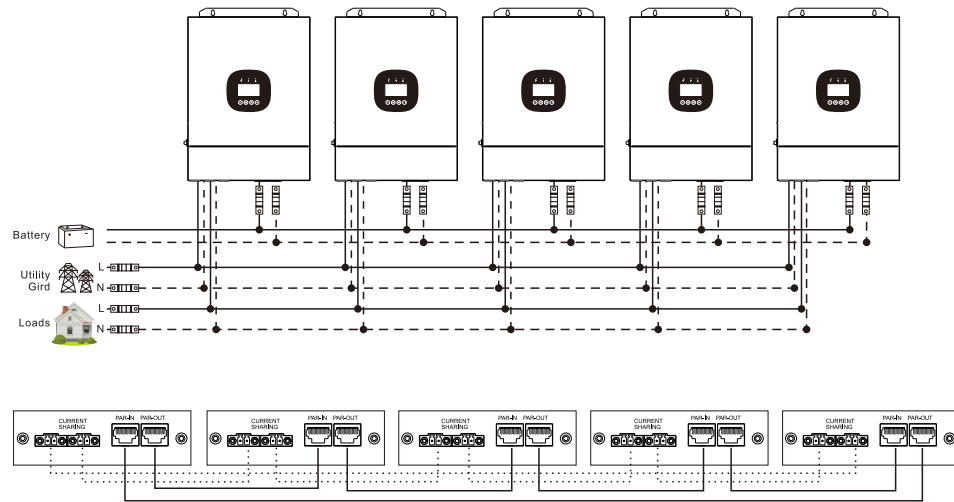
e）Six units connected in parallel:
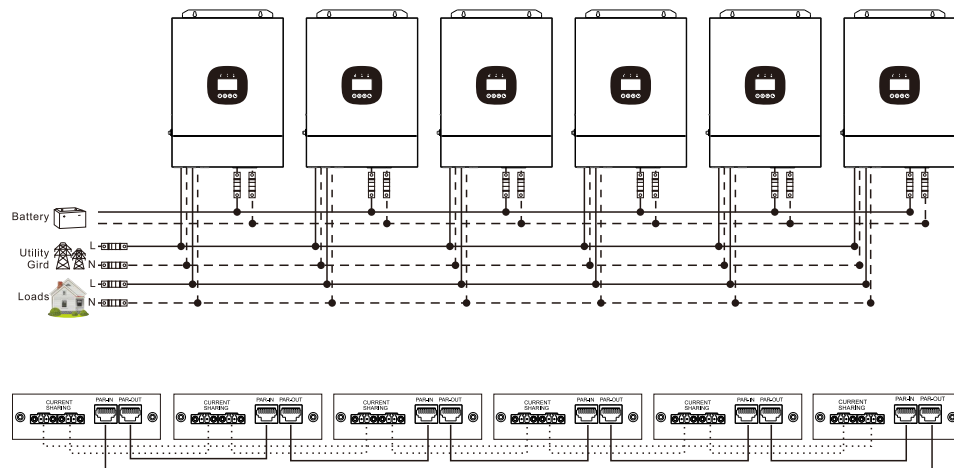
2.4.4 Schematic diagram of parallel connection in three phase

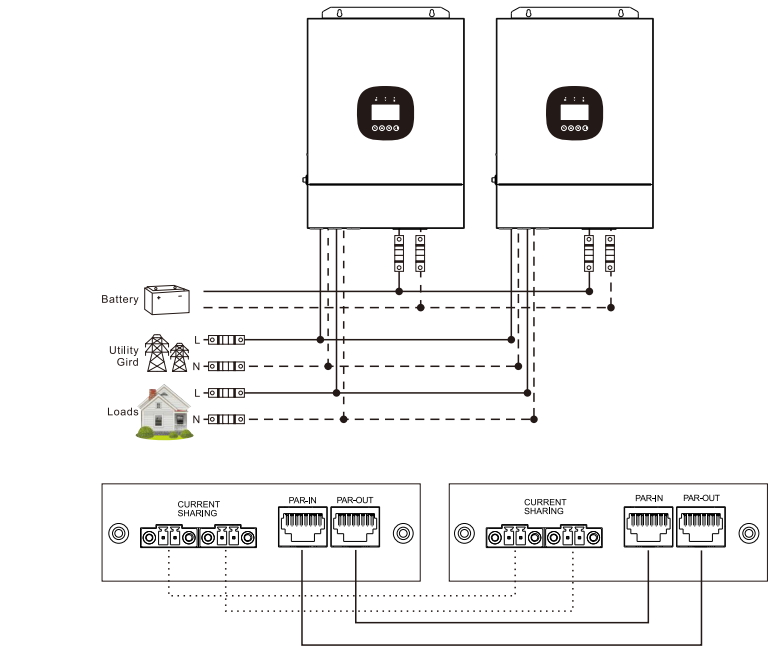1) The parallel communication line and current sharing detection line of the all-in-one solar charger inverter need to be locked with screws after connecting. The schematic diagram is as follows:
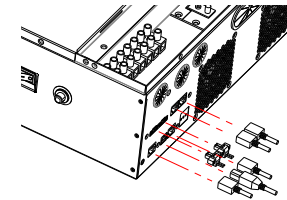
2) In case of parallel operation with multiple inverters, the schematic diagram of parallel connection is as follows:

Parallel Operation in three phase :

a）Three units connected in three phase:

1+1+1 system:
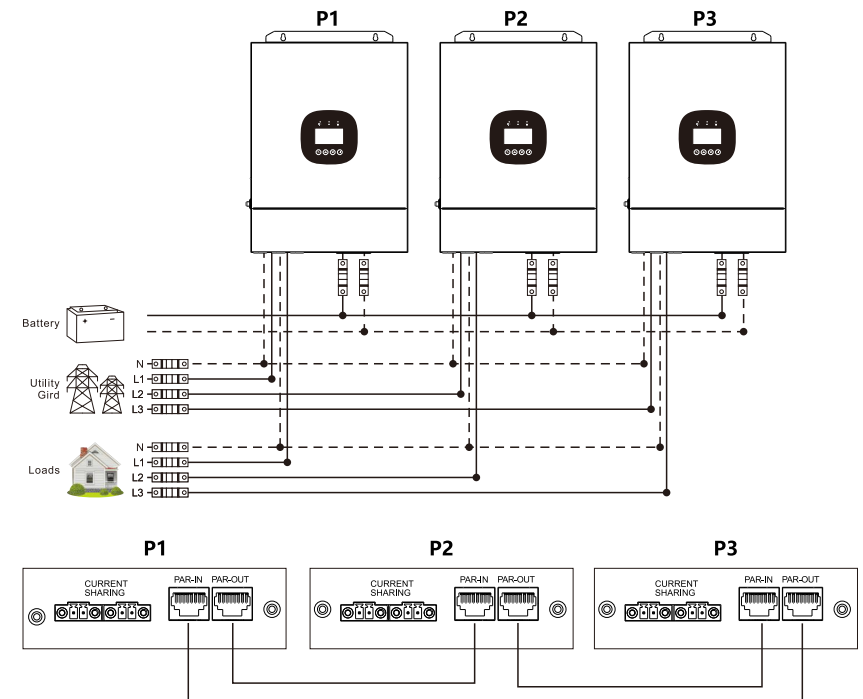
b） **Four units connected in three phase:**

2+1+1 system:
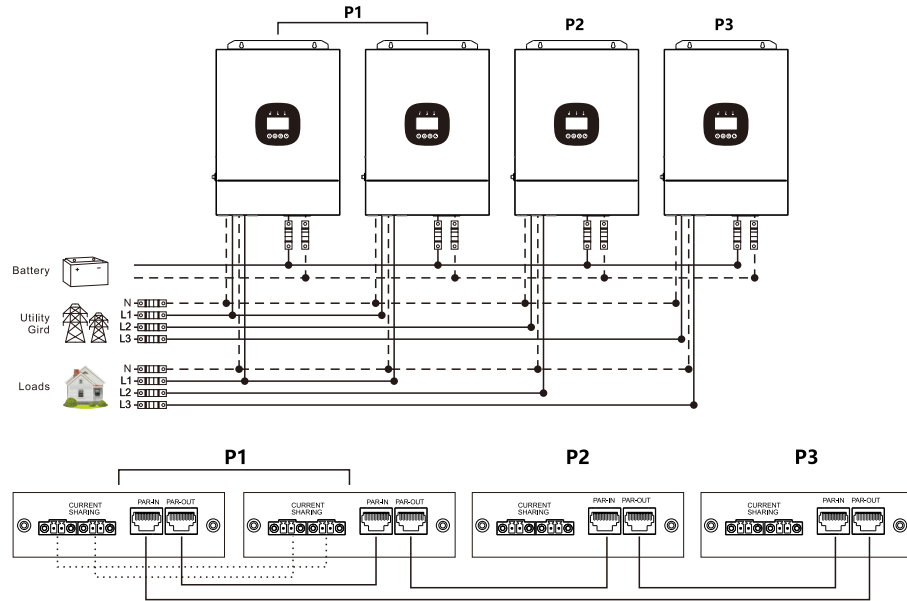
2+2+1 system:
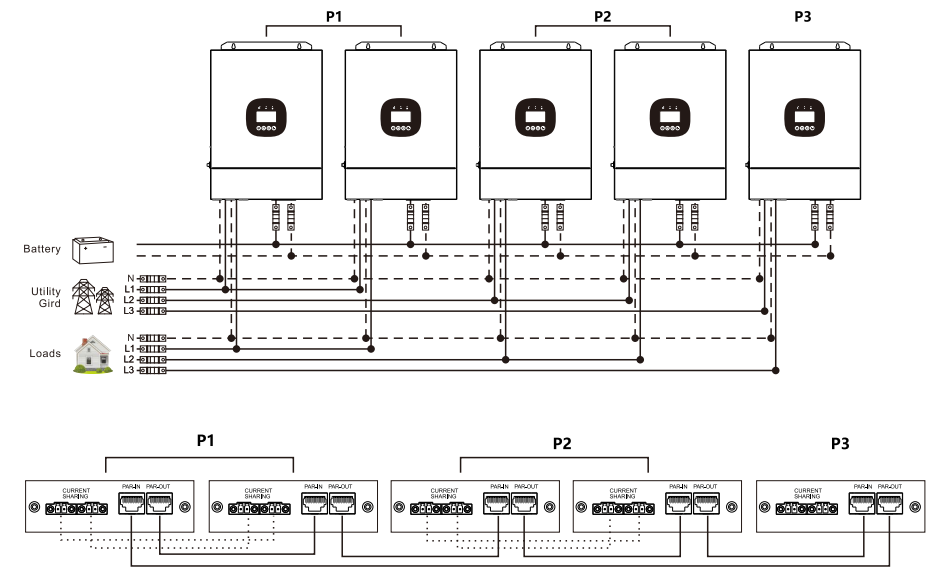
c） **Five units connected in three phase:**

3+1+1 system:
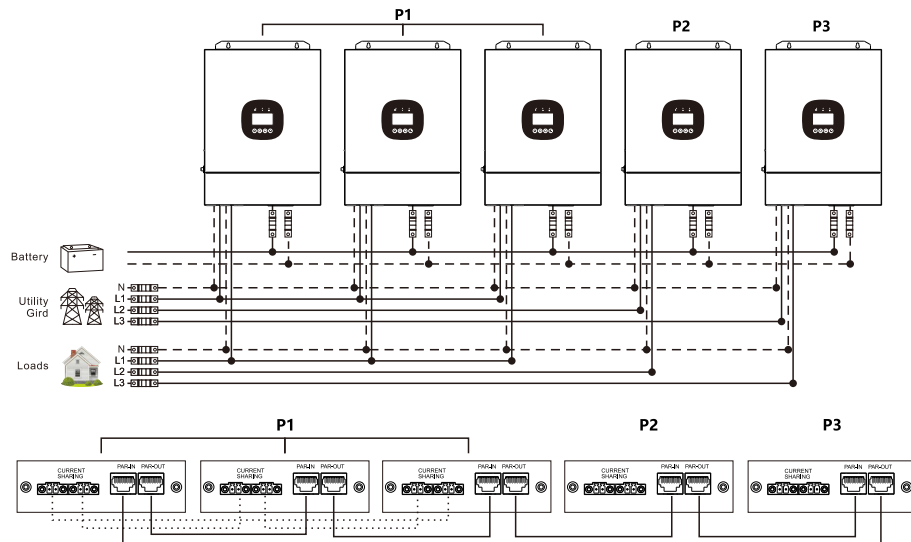
d） **Six units connected in three phase:**

2+2+2 system:
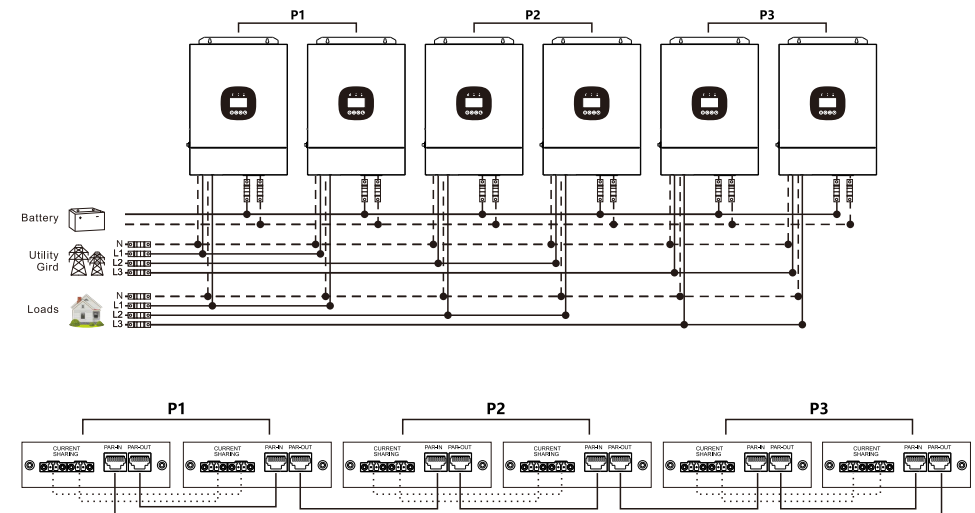
3+2+1 system:
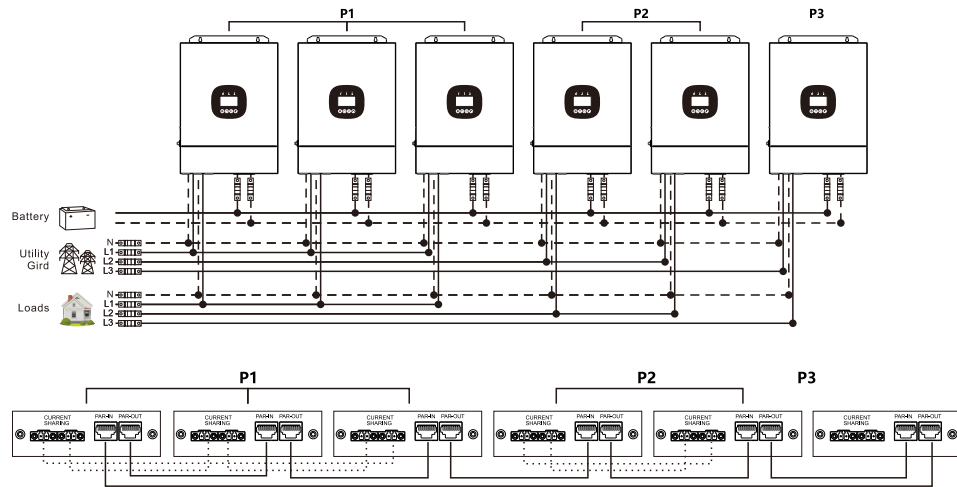
4+1+1 system:
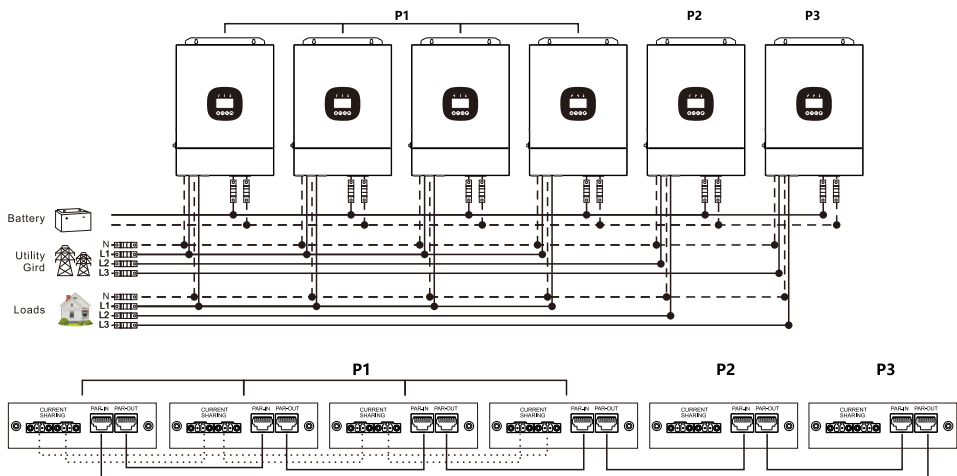
Note:

1) Before starting up and running, please check whether the connection was correct to avoid any abnormalities in the system.

2) All wiring must be fixed and reliable to avoid wire drop during use.

3) When the AC output is wired to the load, it shall be properly wired according to the requirements of the electrical load equipment to avoid damage to the load equipment.

4) Settings [38] need to be set consistently or only for the host. When the machine is running, the voltage set by the host shall prevail, and the master will force the rewrite of the other slave machines to keep the same set. Only can be set in the standby mode.

5) Machine factory default for single machine mode, if you use parallel or three-phase function, you need to set the [31] item parameters through the screen. The setting method is: power on one machine at a time, the rest of the machine off, and then set the [31] item parameters according to the site system operation mode, After this machine is set successfully, turn off the machine switch and wait for the machine to be powered down, then set the rest of the machines in turn until all machines are set, and then all machines are powered up again at the same time and enter the working state. The [31] setting item:

   When in single phase parallel connection : setting [31] should be set as "PAL"

   When in three phase parallel connection, setting [31] should be set as follows: all machines in phase 1 must be set as "3P1 " , all machines in phase 2 must be set as "3P2" , all machines in phase 3 must be set as "3P3" . At present, the voltage phase difference between P1-P2, P1-P3 and P2-P3 is 120 degrees.

   When the output voltage set in the setting [38] is 230Vac (S model), the line voltage between the live wire L1 in phase 1 and the live wire L2 in phase 2 is 230*1.732 = 398Vac, and similarly the line voltage between L1-L3, L2-L3 is 398Vac; the single phase voltage between L1-N, L2-N, L3-N is 230Vac.

6) Finally, power off and start up again, After the system runs, the output votage is measured correctly,and then the load setting is connected.

3. LCD screen operating instructions

3.1 Operation and display panel

Icon	Function Description
Input Source Information	
TOTAL / PV / AC 8.8.8 Kbps MWh KWh VA	Indicates the AC information
Solar Information	
PV1 / PV2 / PV 8.8.8 ℃ KW VA	Indicates PV current, PV voltage
Output Information	
DAILY / LOAD / OUTPUT 8.8.8 KWh VA % Hz℃	Indicates output voltage, output frequency, load percentage, VA in load, load watts and discharge current
Battery Information	
BMS SOC SOH BAT 8.8:8.8 ℃ % A V	Indicates battery voltage and charging current
	The battery capacity status is 0-5%, 5-25%, 25-50%, 50-70%, and 75~100%

	0%~5%	5%~25%	25%~50%	50%~70%	75%~100%

Load Information

OVER LOAD	Indicates overload
	Indicates load

	0%~5%	5%~25%	25%~50%	50%~75%	75%~100%

Mode Operation Information

Icon	Function Description
(sun/moon panel)	Indicates unit connects to PV
(grid)	Indicates unit connects to AC
MPPT	Indicates MPPT
DC	Indicates the DC inverter circuit is working
Li-ion	Indicates include Li-ion

Buzzer Information

(mute speaker)	Indicates buzzer off

Real-time data viewing method

On the LCD main screen, press the "UP" and "DOWN" buttons to scroll through the real-time data of the machine.

Icon	Parameter Interface	LCD Display
①	1) AC Input Voltage 2) Output Voltage 3) PV Voltage 4) Battery Voltage	AC 226v OUTPUT 226v PV 131v 51.2v
②	1) AC Input Voltage 2) AC Input Frequency 3) PV Voltage 4) BMS Battery Voltage. (valid when BMS is enabled)	AC 226v 50.0Hz PV 131v 52.6v
③	1) Load Apparent Power 2) AC output frequency 3) PV Input Current 4) Battery Discharge Current	0.52KVA LOAD OUTPUT 50.0Hz PV 6.1A 0A
④	1) Load active power 2) Load percentage 3) PV input power 4) BMS SOC (BMS battery remaining capacity percentage,valid when BMS is enabled)	0.51KW LOAD OUTPUT 0.9% PV 1.22KW 6.0%

Icon	Parameter Interface	LCD Display
⑤	1) battery input charging power 2) PV input power 3) Battery charging current	1.14KW PV 1.46KW 21A
⑥	1) INV TEMP ℃ 2) PV TEMP ℃	27℃ PV 26℃
⑦	1) U1 Software Version 2) U2 Software Version	U1 3.00 U2 6.00
⑧	1) Rs485 Address 2) Model Battery Voltage Rating	Id 2 ñOd 48.0v

3.2 Setting parameters description

Key operation description: to enter setting menu and exit from setting menu, please press key "SET" . After tering the setting menu, parameter number 【00】 shall flash. At this time, press keys "up " and " Down" to select the parameter item code to set. Afterwards, press key " ENT" to enter parameter editing state, At this moment, the parameter value can flash, The parameter values are adjusted through keys "Up" and*DOWN" . In the end, press key "ENT" to complete parameter editing and return to parameter selection state

Note: In parallel mode, all machines will synchronise the setup parameters of the host machine (the machine with "p" on the display) before switching on, and the setup parameters of any machine will be synchronised with other machines in the system after switching on.

Parameter No.	Parameter name	Settings	Description
00	Exit	[00] ESC	Exit the setup menu
01	Work priority mode	[01] SOL	PV priority mode, switching to the Mains when the PV fails or the battery is lower than the setting value of parameter [04].
		[01] UTI default	Mains priority mode, switching to inverter only when the mains fails.
		[01] SBU	Inverter priority mode. Switch to mains power only when the battery is under voltage or lower than the setting value of parameter [04]; Switch to battery discharge only when the battery is fully charged or higher than the setting value of parameter [05].
02	Output Frequency	[02] 50.0 default	Bypass self-adaption,it automatically adapts to AC frequency in case of AC power;without AC power , the output frequency can be set via the menu. For 230V machine, it is 50Hz by default.
		[02] 60.0	
03	AC Input Voltage Range	[03] APL	Wide mains input voltage range of 230V machine: 90~280V
		[03] UPS default	Narrow mains input voltage range of 230V machine: 170~280V
04	Battery to mains	[04] 43.6V default	parameter [01] =SBU, the battery voltage is lower than this setting value, the output is switched from inverter to mains, the setting range is 40V~52V.cannot be set more than[14] setting item.
05	Utility to Battery Power Setpoint	[05]57.6V default	Parameter[01]=SBU,the battery voltage is higher than this setting value,the output is switched from mains to inverter,the setting range is 48V~60V. It cannot be set lower than[04]and [35]setting items.

Parameter No.	Parameter name	Settings	Description
06	Charging mode	[06] CSO	PV priority charging; only when the PV charging fails, the mains charging is started.
		[06] CUB	Mains priority charging; only when the mains charging fails, the PV charging is started.
		[06] SNU default	PV and Mains hybrid charging; PV charging is a priority, and when the PV energy is insufficient, the Mains charging supplements. When the PV energy is sufficient, the Mains charging stops. Note: Only when the Mains bypass output is loaded, the PV charging and the mains charging can work at the same time. When the inverter works, only the PV charging can be started.
		[06] OSO	Only PV charging, with the Mains charging not activated.
07	Maximum charging current	[07] 60A default	5.6KW, S series model: setting range 0~100A
			6.2KW, S series model: setting range 0~120A
08	Battery Type	[08] USE	For User-defined, all battery parameters can be set.
		[08] SLd	Sealed lead-acid battery; constant-voltage charge voltage: 57.6V, floating charge voltage: 55.2V.
		[08] FLd	Vented lead-acid battery; constant-voltage charge voltage: 58.4V, floating charge voltage: 55.2V.
		[08] GEL default	Colloidal lead-acid battery; constant-voltage charge voltage: 56.8V, floating charge voltage: 55.2V.
		[08] L14/L15/L16	Lithium iron phosphate battery L14/L15/L16 corresponds to lithium iron phosphate battery14,15,16 strings.16 strings,constant-voltage charge voltage is 56.8V. 15 strings,constant-voltage charge voltage is 53.2V. 14 strings,constant-voltage charge voltage is 49.2V.
		[08] N13/N14	Ternary lithium battery; which is adjustable. N13, constant-voltage charge voltage is 53.2V. N14, constant-voltage charge voltage is 57.6V
09	Boost charging voltage	[09] 56.8V default	Boost charge voltage setting; the setting range is 48V~58.4V, with step of 0.4V; it is valid for user-defined battery and lithium.
10	Boost charging maximum time	[10] 120 default	Boost maximum charge time setting means setting of maximum charge time of voltage when the voltage reaches parameter[09]from 5min~900min at 5-minute step.

Parameter no.	Parameter name	Settings	Description
11	Float voltage	[11] 55.2V default	48V-58.4V setting range of float voltage at0.4V step.
12	Over-discharging voltage	[12] 42V default	When the battery voltage is lower than the judgement point, after delaying for the parameter[1 3] setting time, turn off the inverter output.40V-52V voltage setting range at 0.4V step.
13	Over-discharging delay time	[13] 5S default	So as to overdischarge delay time, when the battery voltage is lower than parameter [12], the inverter output is turned off after delaying the time set with the parameter, 5S-50S setting range at 5S step.
14	Battery under-voltage alarm	[14] 44V default	When the battery voltage is lower than the judgement point, an undervoltage alarm is given out and no turn off is output. 40V-52V setting range at 0.4V step.
15	Battery discharge limit voltage	[15] 40V default	When the battery voltage is lower than the judgement point, the output is turned off immediately,40V~52V setting range at 0.4 V step. Valid when the battery type is user-define and lithium.
16	Equalized charging	[16] DIS default	Disable equalized charging.
		[16] ENA	Enable equalized charging. Valid when battery type is flooded lead-acid batteries, sealed lead-acid batteries and user-define.
17	Equalization charging voltage	[17] 56.8V default	48V-58.4V setting range at 0.4V step. Valid when the battery type is flooded lead-acid battery, sealed lead-acid battery and user-define.
18	Equalized charging time	[18] 120 default	5min-900min setting range at 5min step, Valid when the battery type is flooded lead-acid battery and sealed lead-acid battery.

Parameter no.	Parameter name	Settings	Description
19	Equalized charging delay	[19] 240 default	5min-900min setting range at 5min step. Valid when the battery type is flooded lead-acid battery, sealed lead-acid battery and user-define.
20	Equalized charging interval	[20] 30 default	0-30 days setting range at 1-day step, Valid when the battery type is flooded lead-acid battery, sealed lead-acid battery and user-define.
21	Equalized charging enable	[21] DIS default	Start equalized charging immediately.
		[21] ENA	Stop equalized charging immediately.
22	Energy- saving mode	[22] DIS default	Disable energy-saving mode.
		[22] ENA	After the power saving mode is enabled, if the load is null or less than 50W, the inverter output is turned off after a delay for a certain period of time. When the load is more than 50W, the inverter automatic restart.
23	Automatic restart after overload	[23] DIS	When the automatic restart after overload is disabled, if the output is turned off upon overload, the machine shall not restore.
		[23] ENA default	When the automatic restart after overload is enabled, if the output is turned off upon overload output is restarted by the mains after 3min delay The machine shall not restarted after 5 times ofrestarts.
24	Automatic restart after over-temperature	[24] DIS	When automatic restart after over-temperature 2 Automatic restart after over-temperatureSolar storage inverter V2.2[24] DIS[24] ENA defaultis disabled, if over-temperature occurs to switch off the output, the machine will no longer switch on the output.
		[24] ENA default	When automatic restart after over-temperature is enabled, If an over-temperature occurs to turn off the output, it will restart to turn on the output when the temperature drops.

Parameter no.	Parameter name	Settings	Description
25	Buzzer alarm	[25] DIS	Disable alarm.
		[25] ENA default	Enable alarm.
26	Mode change alert	[26] DIS	Disable alarm, when the state of the main input source changes.
		[26] ENA default	Enable alarm, when the state of the main input source changes.
27	Inverter overload to bypass	[27] DIS	Enable alarm, when the state of the main input source changes.
		[27] ENA default	Enable automatic switching to mains when inverter is overloaded.
28	Maximum AC charging current	[28] 60A default	Maximum AC charging current setting. 5.6KW, Setting range 0-60A. 6.2KW, Setting range 0-80A.
30	Communication address setting	[30] 1 default	Parallel mode needs to be set, the setting range is1-6, and cannot be set in parallel operation. Note：Parallel mode can assign address automatically. usually no need to set manually.
31	AC output mode (settable in standby mode only)	[31] SIG default	Single machine setting.
		[31] PAL	Single-phase parallel connection setting.
		[31] 3P1/3P2/3P3	Three-phase parallel connection setting
		All machines in phase 1 must be set as "3P1" All machines in phase 2 must be set as "3P2" All machines in phase 3 must be set as "3P3" When the output voltage set in the setting [38] is 230Vac (S model): At present, the voltage phase difference between (P1-P2, P1-P3, P2-P3) is 120 degrees, the line voltage between the live wire L1 in phase 1 and the live wire L2 in phase 2 is 230*1.732 = 398Vac, and similarly the line voltage between L1-L3, L2-L3 is 398Vac; the single phase voltage between L1-N, L2-N, L3-N is 230Vac.	
32	Rs485 communication	[32]SLA default	RS485 port for PC or telecommunication control.
		[32]BMS	RS485 port for BMS communication.

Parameter no.	Parameter name	Settings	Description
33	BMS communication protocols	When [32] setting item = BMS , you need to select the corresponding lithium battery manufacturer's brand for communication.	
		PAC＝PACE，RDA＝Ritar，AOG＝ALLGRAND BATTERY，OLT＝OLITER，HWD＝SUNWODA，DAQ＝DAKING，WOW＝SRNE，PYL＝PYLONTECH，UOL＝WEILAN	
34	Hybrid power to load and on-grid setting	[34] DIS default	Disable this function.
		[34] Lod	Hybrid power to load mode, in which the PV is only charged first in utility mode and the remaining energy is supplied to the load and not fed into the grid.
		[34] Grid	On-grid function, in utility mode, the PV is charged first and the remaining energy is supplied to the load and fed into the grid,
35	Low-voltage disconnect battery voltage recovery point (fault 04)	[35] 52V default	When the battery voltage is under voltage, the battery voltage needs to recover more than this set value before the inverter starts the output
36	Maximum PV charged recovery point	[36] 80A default	Max PV charger current. 5.6KW, Setting range: 0~100A 6.2KW, Setting range: 0~120A
37	Battery fully charged recovery point	[37] 52V default	After the battery is fully charged, it needs to be lower than this set voltage before it can be recharged.
38	AC output voltage setting	[38] 230Vac default	S series models: allow to set to 200/208/220/230/240Vac,default 230Vac. AC output power = (Rated Power)*(Setting voltage/230)
			This mode only takes effect when the inverter communicates successfully with the lithium battery BMS (Battery Management System), and the following options can be set： [SET] When this option is selected, the inverter charging current adopts the value set in item [07],in which case item [07] can be set to any value from 0 to the maximum charging current.

Parameter no.	Parameter name	Settings	Description
39	Charging current limiting method	[39]BMS default	[BMS] when this option is selected, the charging limit current transmitted by BMS and the value set in[07]will be compared, and the smaller value will be taken as the current charging current, In this case, the charging current that can be set in [07] can not be greater than the the charging limit current of BMS. After [iNV] is selected, it will compare the inverter internal current limit value with the value set in item[07], and take the smaller of them as the current charging current, At this time, charging current can be set in item [07]can not be greater than the inverter internal current limit value, and the logic for the inverter internal current limit value is: 1. When the battery SOC>98%, the charging current is reduced to 1/16 of the rated charging current value of the inverter. 2. When the battery SOC>95%, the charging current is reduced to 1/8 of the rated charging current of the inverter. 3. When the battery SOC>90%, the charging current is reduced to the inverter rated charging current value 1/4. 4. When battery SOC>85%, the charging current is reduced to the inverter rated charging current 1/2.
57	Stop charging current	[57]2A defult	Stop charging when the charging current is less than the setting value.
58	Discharge alarm SOC setting	[58] 15% default	SOC alarm when capacity is less than this setting.(Valid when BMS communication is normal)
59	Stop discharging SOC setting	[59] 5% defauit	Discharge stops when the capacity is less than this setting value, (Valid when BMS communication is normal)
60	Stop charging SOC setting	[60]100% default	When the capacity is greater than this setting, charging stops.(Valid when BMS communication is normal)
61	Switching to mains SOC setting	[61]10% default	When the capacity is less than this setting value, switch to mains power. (Valid when BMS communication is normal)
62	Switch to inverter output SOC setting	[62]100% default	When the capacity is greater than this setting value, switch to inverter output mode. (Valid when BMS communication is normal)

35

3.3 Battery type parameters

For Lead-acid Battery :

| Battery type / Parameters	Sealed lead acid battery (SLD)	Colloidal lead acid battery (GEL)	Vented lead acid battery (FLD)	User-defined (User)	Adjustable
Overvoltage disconnection voltage	60V	60V	60V	36 ~ 60V (Adjustable)	
Battery fully charged recovery point(setup item 37)	52V (Adjustable)	52V (Adjustable)	52V (Adjustable)	52V (Adjustable)	√
Equalizing charge voltage	58.4V	-	59.2V	36 ~ 60V (Adjustable)	√
Boost charge voltage	-	-	-	36 ~ 60V (Adjustable)	√
Floating charge voltage	55.2V	55.2V	55.2V	36 ~ 60V (Adjustable)	√
Undervoltage alarm voltage(01 fault)	44V	44V	44V	36 ~ 60V (Adjustable)	√
Undervoltage alarm voltage recovery point(01 fault)	Undervoltage alarm voltage+0.8V				
Low voltage disconnection voltage(04 fault)	42V	42V	42V	36 ~ 60V (Adjustable)	√
Low voltage disconnection voltage recovery point (04 fault)(setup item 35)	52V (Adjustable)	52V (Adjustable)	52V (Adjustable)	52V (Adjustable)	√
Discharge limit voltage	-	-	-	40 ~ 60V (Adjustable)	√
Over-discharge delay time	5s	5s	5s	1 ~ 30s (Adjustable)	√
Equalizing charge duration	120 minutes	-	120 minutes	0 ~ 600 minutes (Adjustable)	√
Equalizing charge interval	30 days	-	30 days	0 ~ 250 days (Adjustable)	√
Boost charge duration	-	-	-	10 ~ 600 minutes (Adjustable)	√

36

For Lithium Battery :

Battery type / Parameters	Ternary lithium battery (N13)	Ternary lithium battery (N14)	LFP battery (L16)	LFP battery (L15)	LFP battery (L14)	Adjustable
Overvoltage disconnection voltage	60V	60V	60V	60V	60V	
Battery fully charged recovery point(setup item 37)	50.4V (Adjustable)	54.8V (Adjustable)	53.6V (Adjustable)	50.4V (Adjustable)	47.6V (Adjustable)	√
Equalizing charge voltage	-	-	-	-	-	√
Boost charge voltage	53.2V (Adjustable)	57.6V (Adjustable)	56.8V (Adjustable)	53.2V (Adjustable)	49.2V (Adjustable)	√
Floating charge voltage	53.2V (Adjustable)	57.6V (Adjustable)	56.8V (Adjustable)	53.2V (Adjustable)	49.2 (Adjustable)	√
Undervoltage alarm voltage(01 fault)	43.6V (Adjustable)	46.8V (Adjustable)	49.6V (Adjustable)	46.4V (Adjustable)	43.2V (Adjustable)	√
Undervoltage alarm voltage recovery point(01 fault)	Undervoltage alarm voltage+0.8V					
Low voltage disconnection voltage(04 fault)	38.8V (Adjustable)	42V (Adjustable)	48.8V (Adjustable)	45.6V (Adjustable)	42V (Adjustable)	√
Low voltage disconnection voltage recovery point (04 fault)(setup item 35)	46V (Adjustable)	49.6V (Adjustable)	52.8V (Adjustable)	49.6V (Adjustable)	46V (Adjustable)	√
Discharge limit voltage	-	-	-	-	-	
Over-discharge delay time	-	-	-	-	-	
Boost charge duration	120 minutes (Adjustable)	120 minutes (Adjustable)	120 minutes (Adjustable)	120 minutes (Adjustable)	120 minutes (Adjustable)	√

4. Other functions

4.1 Dry contact

Working principle: This dry contact can control the ON/OFF of the diesel generator to charge the battery. ① Normally, the terminals are that the NC-N point is closed and the NO-N point is opened; ② When the battery voltage reaches the low voltage disconnection point, the relay coil is energized, and the terminals turn to that the NO-N point is closed while NC-N point is opened. At this point, NO-N point can drive resistive loads: 125VAC/1A, 230VAC/1A, 30VDC/1A.
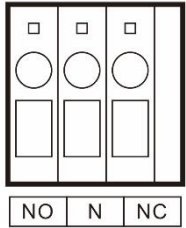
4.2 RS485 communication port

This port is an RS485 communication port which comes with two functions:

① RS485 port allows direct communication with the optional host computer developed by our company through this port, and enables monitoring of the equipment running status and setting of some parameters on the computer; This port allows RS485 communication with lithium battery BMS.

② WIFI port also allows direct connection with the optional RS485 to WiFi/GPRS communication module developed by our company through this port. After the module is selected, you can connect the all-in-one solar charge inverter through the mobile phone APp, on which you can view the operating parameters and status of the device.
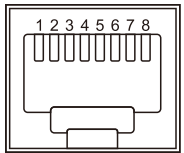
As shown in the figure:

RS485 : Pin 2,Pin 7 is R485-A1,and Pin 1,8 is RS485-B1:

WIFI :   Pin 1 is GND, power supply, Pin 2 is 5V, Pin 7 is RS485-B2, and Pin 8 is RS485-A2;

4.3 USB communication port

This is a USB communication port, which can be used for USB communication with the optional PC host software. To use this port, you should install the corresponding "USB to serial chip CH340T driver" in the computer.

4.4 Parallel communication function (parallel operation only)

a) This port is used for parallel communication, through which the parallel modules can communicate with each other.
b) Each inverter has two RJ45 ports, one for the male connector and the other for the female connector.
c) When connecting, make sure to connect the male connector of the inverter with the female connector of the inverter to be paralleled, or connect the female connector of the inverter to the male connector of the inverter to be paralleled.
d) Do not connect the male connector of the inverter to its female connector.

RS485

4.5 Current sharing detection function (parallel operation only)

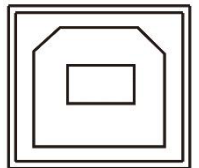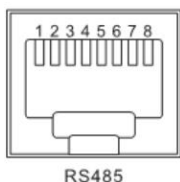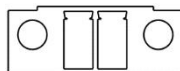a) This port is used for current sharing detection, through which the current sharing of the parallel modules can be detected (parallel operation only).
b) Each inverter has two current sharing detection ports, which are connected in parallel. When it is connected to other models to be paralleled, either port can be connected for convenience. There is no special mandatory wiring requirements.

5. Protection

5.1 Protections provided

No.	Protections	Description
1	PV current/power limiting protection	When charging current or power of the PV array configured exceeds the PV rated, it will charge at the rated.
2	PV night reverse-current protection	At night, the battery is prevented from discharging through the PV module because the battery voltage is greater than the voltage of PV module.
3	Mains input over voltage protection	When the mains voltage exceeds 280V, the mains charging will be stopped and switched to the inverter mode.
4	Mains input under voltage protection	When the mains voltage is lower than 170V (230V model /UPS mode), the mains charging will be stopped and switched to the inverter mode.
5	Battery over voltage protection	When the battery voltage reaches the overvoltage disconnection point, the PV and the mains will be automatically stopped to charge the battery to prevent the battery from being overcharged and damaged.
6	Battery low voltage protection	When the battery voltage reaches the low voltage disconnection point, the battery discharging will be automatically stopped to prevent the battery from being over-discharged and damaged.
7	Load output short circuit protection	When a short-circuit fault occurs at the load output terminal, the AC output is immediately turned off and turned on again after 1 second.
8	Heat sink over temperature protection	When the internal temperature is too high, the all-in-one machine will stop charging and discharging; when the temperature returns to normal, charging and discharging will resume.
9	Overload protection	Output again 3 minutes after an overload protection, and turn the output off after 5 consecutive times of overload protection until the machine is re-powered. For the specific overload level and duration, refer to the technical parameters table in the manual.
10	PV reverse polarity protection	When the PV polarity is reversed, the machine will not be damaged.
11	AC reverse protection	Prevent battery inverter AC current from being reversely input to Bypass.

12	Bypass over current protection	Built-in AC input overcurrent protection circuit breaker.
13	Battery input over current protection	When the discharge output current of the battery is greater than the maximum value and lasts for 1 minute, the AC input would switched to load.
14	Battery input protection	When the battery is reversely connected or the inverter is short-circuited, the battery input fuse in the inverter will blow out to prevent the battery from being damaged or causing a fire.
15	Charge short protection	When the external battery port is short-circuited in the PV or AC charging state, the inverter will protect and stop the output current.
16	CAN communication loss protection	In parallel operation, an alarm will be given when CAN communication is lost.
17	Parallel connection error protection	In parallel operation, the equipment will be protected when the parallel line is lost.
18	Parallel battery voltage difference protection	In parallel operation, the equipment will be protected when the battery connection is inconsistent and the battery voltage is greatly different from that detected by the host.
19	Parallel AC voltage difference protection	In parallel operation, the equipment will be protected when the AC IN input connection is inconsistent.
20	Parallel current sharing fault protection	In parallel operation, the running equipment will be protected when the load difference of each inverter is large due to improper connection of current sharing line or device damage.
21	Synchronization signal fault protection	The equipment will be protected when there is a fault in the guidance signal between parallel buses, causing inconsistent behavior of each inverter.

5.2 Meaning of fault code

Fault code	Fault name	Whether it affects the output or not	Description
【01】	BatVoltLow	No	Battery undervoltage alarm
【02】	BatOverCurrSw	Yes	Battery discharge average current overcurrent software protection
【03】	BatPopen	Yes	Battery not-connected alarm
【04】	BatLowEod	Yes	Battery undervoltage stop discharge alarm
【05】	BatOverCurrHw	Yes	Battery overcurrent hardware protection
【06】	BatOverVolt	Yes	Charging overvoltage protection
【07】	BusOverVoltHw	Yes	Bus overvoltage hardware protection
【08】	BusOverVoltSw	Yes	Bus overvoltage software protection
【09】	PvVoltHigh	No	PV overvoltage protection
【10】	PvBoostOCSw	No	Boost overcurrent software protection
【11】	PvBoostOCHw	No	Boost overcurrent hardware protection
【12】	bLineLoss	No	Mains power down
【13】	OverloadBypass	Yes	Bypass overload protection
【14】	OverloadInverter	Yes	Inverter overload protection
【15】	AcOverCurrHw	Yes	Inverter overcurrent hardware protection
【17】	InvShort	Yes	Inverter short circuit protection

【19】	OverTemperMppt	No	Buck heat sink over temperature protection
【20】	OverTemperInv	Yes	Inverter heat sink over temperature protection
【21】	FanFail	Yes	Fan failure
【22】	EEPROM	Yes	Memory failure
【23】	ModelNumErr	Yes	Model setting error
【26】	RlyShort	Yes	Inverted AC Output Backfills to Bypass AC Input
【29】	BusVoltLow	Yes	Internal battery boost circuit failure
【30】	BatCapacityLow1	No	Alarm given when battery capacity rate is lower than 10% (setting BMS to enable validity)
【31】	BatCapacityLow2	No	Alarm given when battery capacity rate is lower than 5% (setting BMS to enable validity)
【32】	BatCapacityLowStop	Yes	Inverter stops when battery capacity is low (setting BMS to enable validity)
【34】	CanCommFault	Yes	CAN communication fault in parallel operation
【35】	ParaAddrErr	Yes	Parallel ID setting error
【36】	-	-	-
【37】	ParaShareCurrErr	Yes	Parallel current sharing fault
【38】	ParaBattVoltDiff	Yes	Large battery voltage difference in parallel mode

【39】	ParaAcSrcDiff	Yes	Inconsistent AC input source in parallel mode
【40】	ParaHwSynErr	Yes	Hardware synchronization signal error in parallel mode
【41】	InvDcVoltErr	Yes	Inverter DC voltage error
【42】	SysFwVersionDiff	Yes	Inconsistent system firmware version in parallel mode
【43】	ParaLineContErr	Yes	Parallel line connection error in parallel mode
【44】	Serial number error	Yes	If the serial number is not set by omission in production, please contact the manufacturer to set it
【45】	Error setting of splitphase mode	Yes	【31】Settings item setting error
【58】	BMS communication error	No	Check whether the communication line is connected correctly and whether [33] is set to the corresponding lithium battery communication protocol
【59】	BMS alarm	No	Check the BMS fault type and troubleshoot battery problems
【60】	BMS battery low temperature alarm	No	Li-ion battery BMS low-temperature alarm
【61】	BMS battery over temperature alarm	No	Li-ion battery BMS over-temperature alarm
【62】	BMS battery over current alarm	No	Li-ion battery BMS over-current alarm
【63】	BMS battery under-voltage alarm	No	Li-ion battery BMS under-voltage alarm
【64】	BMS battery over -voltage alarm	No	Li-ion battery BMS over-voltage alarm

5.3 Handling measures for part of faults

Fault code	Faults	Remedy
Display	No display on the screen	Check if the battery the PV air switch has been closed; if the switch is in the "ON" state; press any button on the screen to exit the screen sleep mode.
【06】	Battery overvoltage protection	Measure if the battery voltage exceeds rated, and turn off the PV array air switch and Mains air switch.
【01】 【04】	Battery undervoltage protection	Charge the battery until it returns to the low voltage disconnection recovery voltage.
【21】	Fan failure	Check if the fan is not turning or blocked by foreign object.
【19】 【20】	Heat sink over temperature protection	When the temperature of the device is cooled below the recovery temperature, normal charge and discharge control is resumed.
【13】 【14】	Bypass overload protection, inverter overload protection	① Reduce the use of power equipment; ② Restart the unit to resume load output.
【17】	Inverter short circuit protection	① Check the load connection carefully and clear the short-circuit fault points; ② Re-power up to resume load output.
【09】	PV overvoltage	Use a multimeter to check if the PV input voltage exceeds the maximum allowable input voltage rated.
【03】	Battery disconnected alarm	Check if the battery is not connected or if the battery circuit breaker is not closed.
【40】 【43】	Parallel connection fault	Check whether the parallel line is not connected well, such as loose or wrong connection.
【35】	Parallel ID setting error	Check whether the setting of parallel ID number is repeated.
【37】	Parallel current sharing fault	Check whether the parallel current sharing line is not connected well, such as loose or wrong connection.
【39】	Inconsistent AC input source in parallel mode	Check whether the parallel AC inputs are from the same input interface.
【42】	Inconsistent system firmware version in parallel mode	Check whether the software version of each inverter is consistent.

6. System Maintenance

▷ In order to maintain the best long-term performance, it is recommended to conduct following checks twice a year.

1. Confirm that the air flow around the machine will not be blocked. In addition, remove any dirt or debris from the radiator.
2. Check whether the insulation of all exposed wires is damaged due to sun exposure, friction with other objects around, dry rot, insect or rat damage, etc. If necessary, it is required to repair or replace the wires
3. Verify that the indication and display are consistent with the operation of the device. Please pay attention to any fault or error display and take corrective measures if necessary.
4. Check all terminals for corrosion, insulation damage, high temperature or burning/discoloration sign, and tighten the terminal screws.
5. Check for dirt, nesting insects and corrosion phenomenon and clean as required.
6. If the arrester has falled, replace the falled arrester in time to protect the machine and other user device against lightning damage.

Waring: Danger of electric shock! To perform above operations, make sure that all the power supplies of the machine have been broken and all the capacitor electricity has been discharged, Afterwards, corresponding inspection or operation can be performed!

▷ We are not responsible for any following damage:

① Damage caused by improper use or use in inappropriate place.
② Open-circuit voltage of PV module exceeds maximum allowable voltage
③ The damage caused by the operation ambient temperature beyond the limited operation temperature range.
④ Personally take apart and maintain the machine.
⑤ Damage caused by force majeure: damage caused by transportation and handling of the machine.

7. Technical parameters

Models	5.6KW	6.2KW
Parallel mode		
Permitted parallel number	1~6units	
AC mode		
Rated input voltage	220/230Vac	
Input voltage range	(170Vac~280Vac) ±2% (90Vac-280Vac) ±2%	
Frequency	50Hz/ 60Hz (Auto detection)	
Frequency Range	47±0.3Hz ~ 55±0.3Hz (50Hz); 57±0.3Hz ~ 65±0.3Hz (60Hz);	
Overload/short circuit protection	Circuit breaker	
Efficiency	>95%	
Conversion time (bypass and inverter)	10ms (typical)	
AC reverse protection	Available	
Maximum bypass overload current	40A	44A
Inverter mode		
Output voltage waveform	Pure sine wave	
Rated output power (VA)	5600	6200
Rated output power (W)	5600	6200
Power factor	1	
Rated output voltage (Vac)	230Vac	
Output voltage error	±5%	
Output frequency range (Hz)	50Hz ± 0.3Hz 60Hz ± 0.3Hz	
Maximum Efficiency	>92%	
Overload protection	(102% < load <125%) ±10%: report error and turn off the output after 1 minutes; (125% < load < 150%) ± 10%: report error and turn off the output after 10 seconds; Load >150% ±10%: report error and turn off the output after 5 seconds	
Peak power	11200VA	12400VA

	5.6KW	6.2KW
Loaded motor capability	4HP	
Rated battery input voltage	48V (Minimum starting voltage 44V)	
Battery voltage range	40.0Vdc~60Vdc±0.6Vdc(undervoltage alarm/turnoff volatage/ overvoltage alarm/overvoltage restoration...settable LCD screen)	
Power saving mode self-consumption	Load≤50W	
AC charging		
Battery type	Lead acid or lithium battery	
Maximum charge current(can be set)	0-60A	0-80A
Charge current error	± 3Adc	
Charge voltage range	40 –58Vdc	
Short circuit protection	Circuit breaker and blown fuse	
Circuit breaker specifications	40A	44A
Overcharge protection	Alarm and turn off charging after 1 minute	
PV charging		
Maximum PV open circuit voltage	500Vdc	
PV operating voltage range	90 -500Vdc	60 -500Vdc
MPPT voltage range	90-450Vdc	60-450Vdc
Battery voltage range	40-60Vdc	
Maximum PV input power	6000W	7000W
Maximum PV input current	22A	27A
PV charging current range (can be set)	0-100A	0-120A
Charging short circuit protection	Blown fuse	
Wiring protection	Reverse polarity protection	
Hybrid charging Max charger current specifications (AC charger+PV charger)		
Max charger current(can be set)	0-100A	0-120A
Certified specifications		
Certification	CE(IEC62109-1) / CETL(UL 1741 C22.2 NO.107.1) /FCC/SAA	

EMC certification level	EN61000	
Operating temperature range	-10°C to 55°C	
Storage temperature range	-25°C ~ 60°C	
Humidity range	5% to 95% (Conformal coating protection)	
Noise	≤60dB	
Heat dissipation	Forced air cooling, variable speed of fan	
Communication interface	USB/RS485(WiFi/GPRS)/Dry contact control	
Product Size(D*W*H)	455mm*340mm*140mm	535mm*375mm*135mm
Packing Size(D*W*H)	533mm*423mm*225mm	630mm*470mm*220mm
N.W.(Kg)	11.5KG	12.6KG
G.W.(Kg)	13KG	14.4KG