

USER MANUAL



All-in-One Solar Charge Inverter

PowerCore 18K-48

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1. Important Safety Instructions

1.1 How to Use This Instruction Manual

This manual contains important information about the product, including guidelines for installation, operation, and maintenance.

Before installing, operating, or servicing the inverter, carefully read this manual and all related documents. These documents should be properly stored and remain accessible at all times for future reference.

This manual is continuously updated and improved. Content may differ slightly from the actual product. Please refer to the product you have purchased.

1.2 Symbols in This Manual

 DANGER	DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.
 WARNING	WARNING indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury.
 CAUTION	CAUTION indicates a potentially hazardous situation which, if not avoided, may result in minor or moderate injury.
 NOTICE	NOTICE provides important information related to the operation of the product.

1.3 Safety Instructions

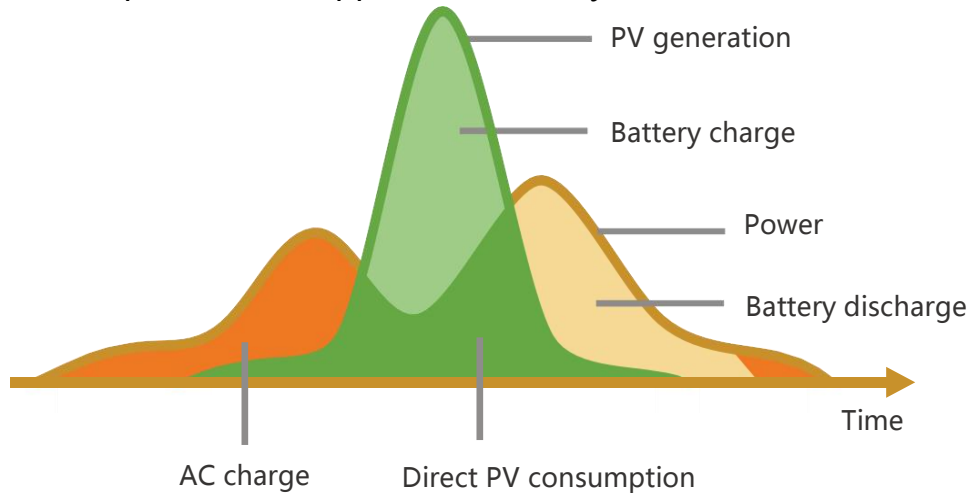
WARNING: This chapter contains important safety and operating instructions. Read this manual carefully and keep it for future reference.

- Comply with all local codes, regulations, and standards when installing this inverter.
- Beware of high voltage. Before and during installation, turn off all power sources to avoid the risk of electric shock.
- For optimum performance, select appropriate cable sizes and required protective devices in accordance with the specified requirements.
- Do not connect or disconnect any wiring while the inverter is operating.
- Do not open the terminal cover while the inverter is in operation.
- Ensure the inverter is properly grounded.
- Never short-circuit the AC output or DC input terminals.
- Do not disassemble the inverter. All servicing and maintenance must be performed by qualified service personnel.
- Never charge a frozen battery.
- Keep children away from the inverter to prevent accidental contact or misuse.
- Ensure the inverter is the sole input power source for the load. Do not connect it in parallel with other AC power sources, as this may cause equipment damage.

2. Product Introduction

2.1 Product Description

This product is a new-generation solar energy storage inverter that integrates photovoltaic energy storage, utility power charging, and pure sine wave AC output. It adopts DSP control and advanced control algorithms, delivering fast response, high reliability, and compliance with applicable industry standards.



2.2 Product Features

- Supports both lead-acid and lithium-ion batteries.
- Features a dual activation function for lithium-ion batteries in hibernation; activation can be triggered by either utility power or pv input.
- Provides three-phase pure sine wave output (156–242 V).
- Allows phase voltage adjustment within the AC range of 100, 105, 110, 120, and 127 V.
- Supports dual photovoltaic inputs, enabling simultaneous maximum power point tracking (MPPT) for charging or load management of two independent MPPTs.
- Dual MPPTs achieve 99.9% efficiency with a maximum current of 36 A per circuit, perfectly suited for high-power solar modules.
- Offers two charging modes: solar-only and grid + PV hybrid charging.
- Features a time-slot charging and discharging function, allowing scheduled activation of grid charging, battery discharging, and bypass power supply periods.
- Energy-saving mode reduces no-load energy consumption.
- Provides two output modes—utility bypass and inverter output—with uninterrupted power supply functionality.
- Dedicated generator port, which can also serve as a secondary load output.
- Large LCD screen with dynamic flow diagrams, making system data and operational status easy to understand.
- Comprehensive 360° protection, including short-circuit, overcurrent, overvoltage/undervoltage, overload, and reverse-feed protection.
- Supports CAN, USB, and RS485 communication interfaces.

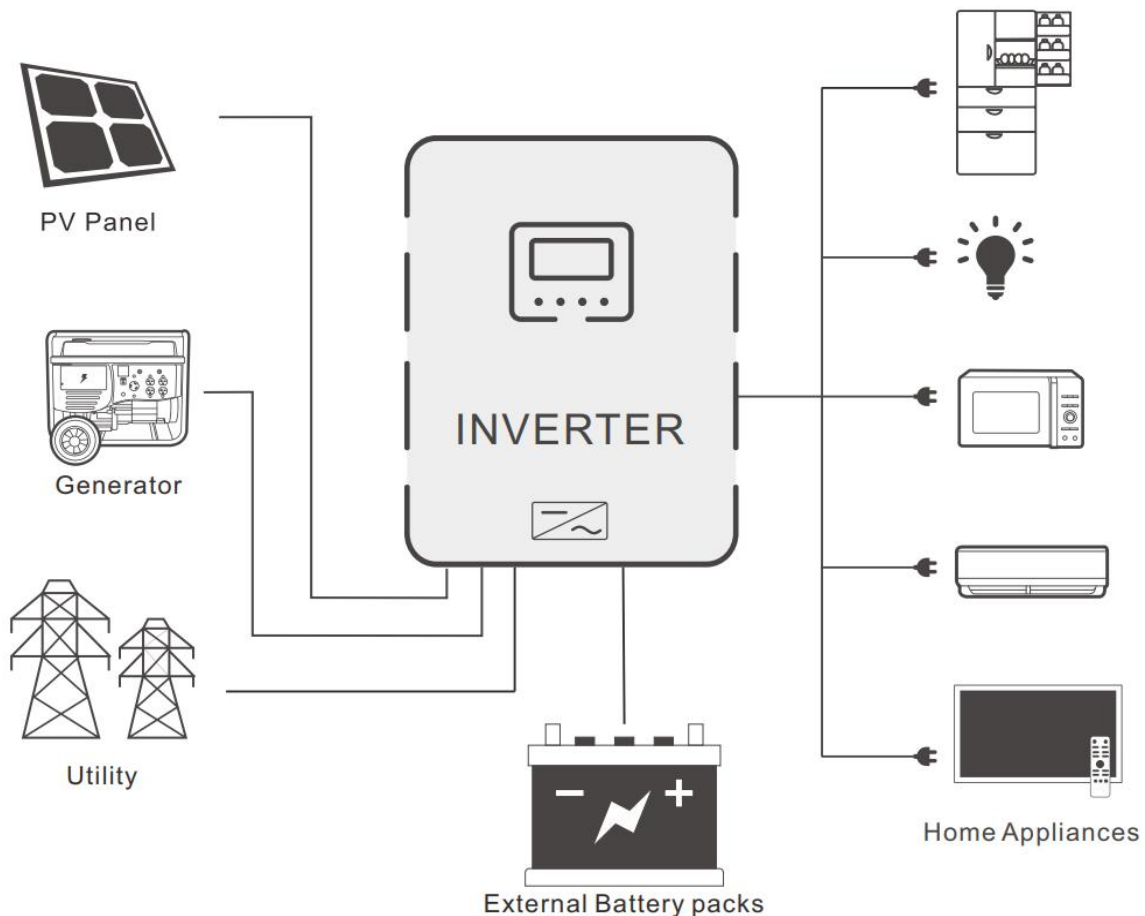
2.3 System Connection Diagram

The diagram below illustrates a typical system application scenario for this product.

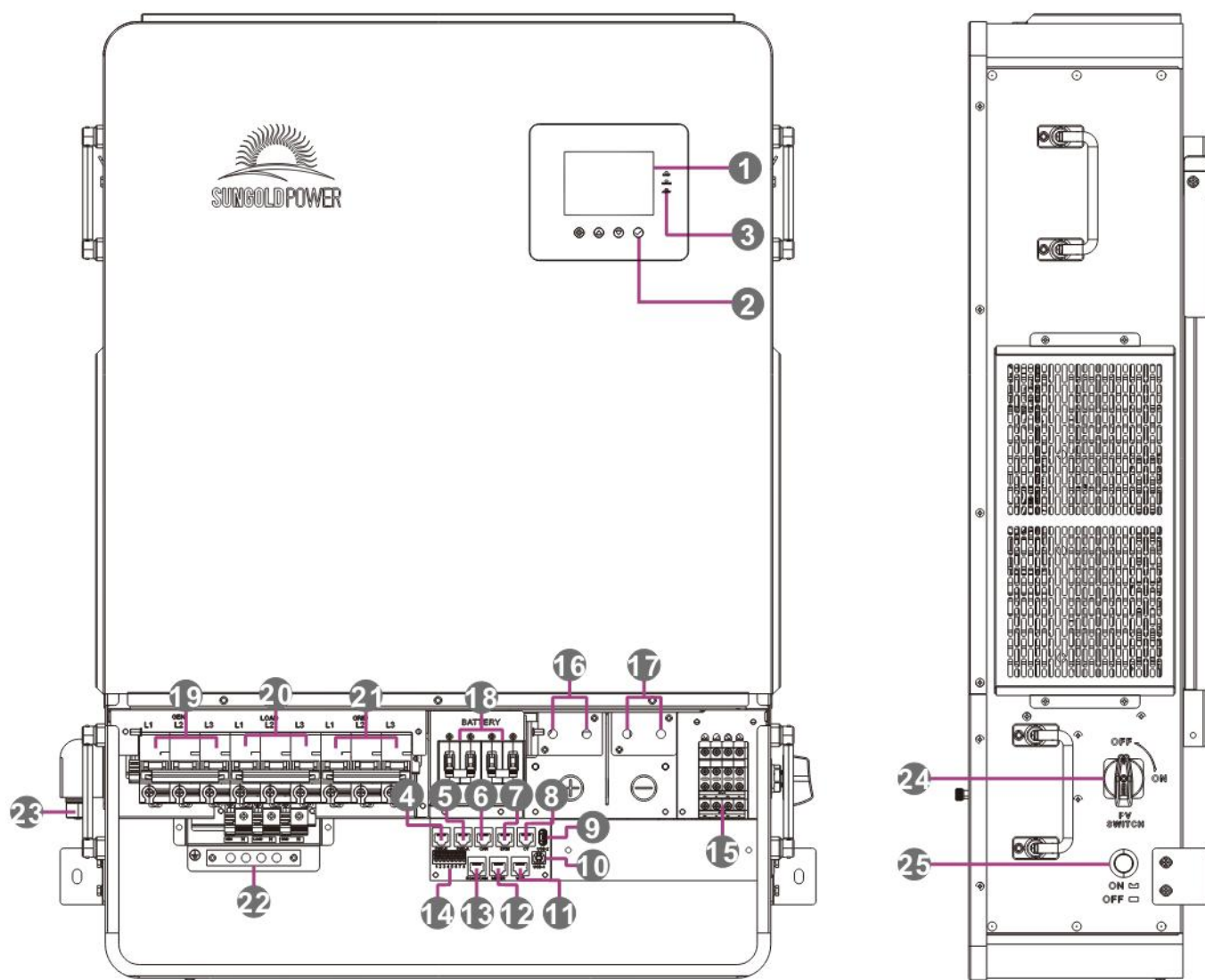
A complete system consists of the following components:

- **PV Modules:** Convert solar energy into DC power, which can either charge the battery through the inverter or be directly converted to AC power to supply the load.
- **Grid or Generator:** Connected to the AC input, these can simultaneously supply the load and charge the battery. The system can also operate independently without grid or generator power when the battery and PV modules supply the load.
- **Battery:** Ensures a stable power supply for the system load when solar energy is insufficient or utility power is unavailable.
- **Home Load:** Various household or office appliances can be connected, including refrigerators, lamps, TVs, fans, air conditioners, and other AC loads.
- **Inverter:** The central energy conversion device of the entire system, managing DC-to-AC conversion and overall power distribution.

The actual application scenario determines the specific system wiring configuration.

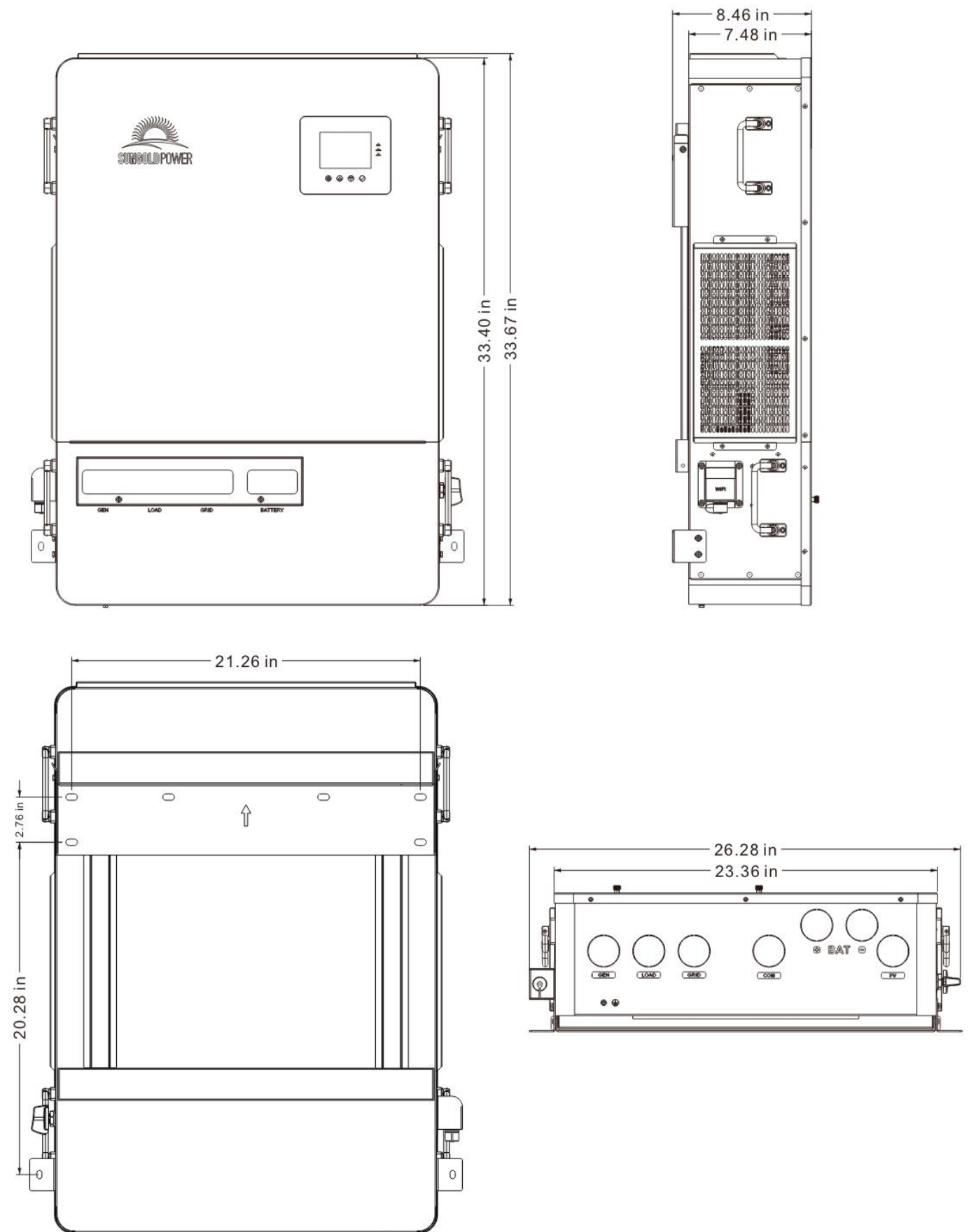


2.4 Product Overview



1	LCD Screen	2	Operation Buttons	3	LED Indicators
4	Parallel Port (PAR-B)	5	Parallel Port (PAR-A)	6	CAN Port
7	DRM Port	8	CT Port	9	USB-2 Port
10	USB-1 Port	11	WiFi Port 1	12	Meter Port
13	RS485/CAN Port	14	Dry Contact Prot	15	PV Input (PV1+PV2)
16	Battery (Positive Terminal)	17	Battery (Negative Terminal)	18	Battery Circuit Breaker
19	Generator Input (L1+L2+L3+N)	20	Load Output (L1+L2+L3+N)	21	Grid Input (L1+L2+L3+N)
22	PE Terminal	23	WiFi Port 2	24	PV Switch
25	Power ON/OFF Switch				

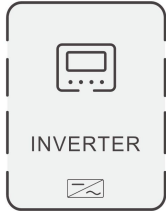
2.5 Product Size



3.Installation

3.1 Parts List

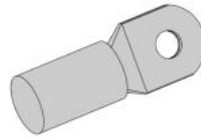
Please inspect the equipment carefully and make sure the packaging is not damaged. Open the package and check that all of the items listed below are included. If anything is missing or damaged, contact us before proceeding.



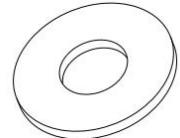
Inverter
x 1pcs



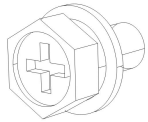
Wall mount bracket
x 1pcs



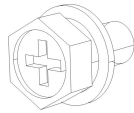
Crimp Terminal SC95-8
x 4pcs



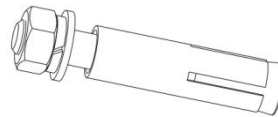
Gasket M8*20mm
x 4pcs



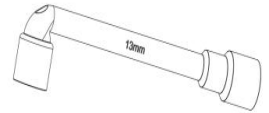
Hexagon Socket Cross
Countersunk Head
Screw M8*12mm
x 5pcs



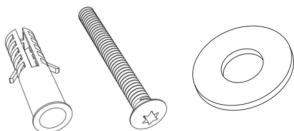
Hexagon Socket
Cross Countersunk
Head Screw
M5*10mm
x 4pcs



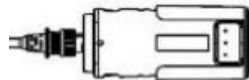
Expansion Bolt
M8*60mm
x 4pcs



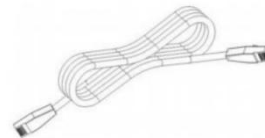
Socket Wrench M8
x 1pcs



Round-head self-
tapping screws FA6*35
+ white rubber plugs +
washers
x 1bag



WiFi module
x 1pcs



Parallel
communication cable
x 1pcs



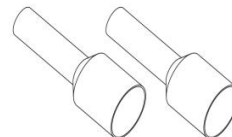
Battery
communication cable
x 1pcs / x 1pcs



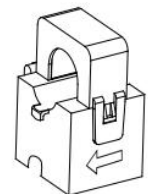
Black screw M4*8mm
x 4pcs



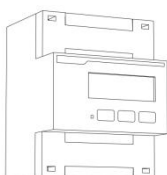
Hex Key_L-Type_5mm
x 1pcs



Ferrule terminal
x 8pcs



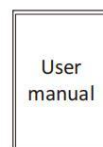
CT (Optional)
x 1pcs



Meter (Optional)
x 1pcs



Quality certificate
x 1pcs



User manual
x 1pcs



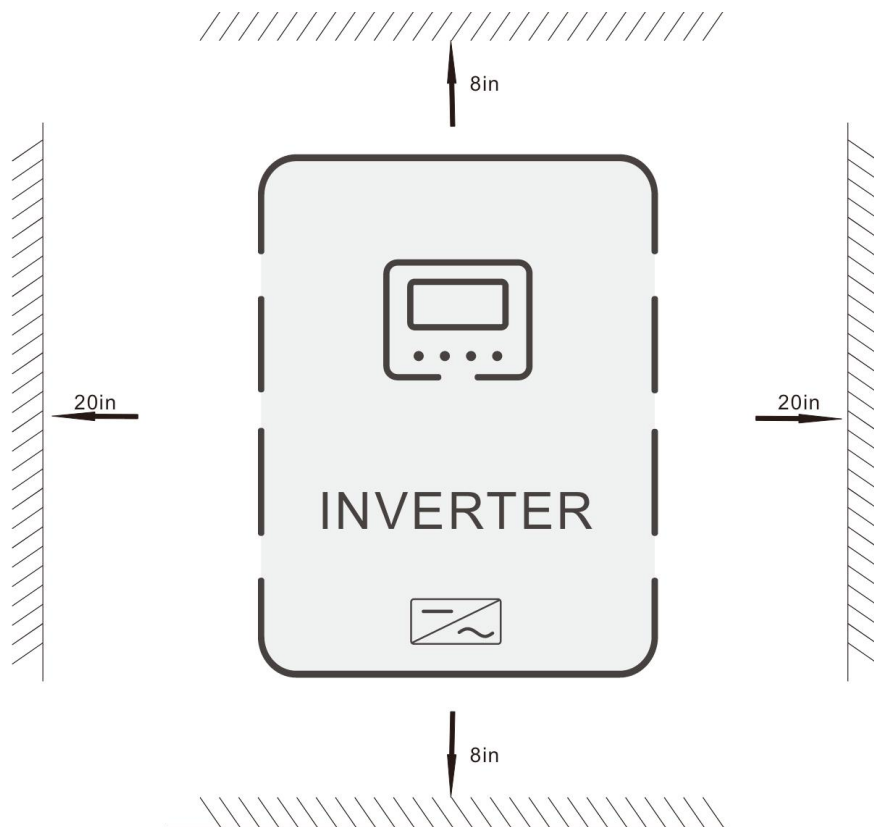
Outgoing inspection
report
Warranty Card
x 1pcs / x 1pcs

3.2 Mounting Instructions

3.2.1 Installation Location Selection

This product is designed for indoor use only (IP20 rated). When choosing an installation location, please consider the following:

- Select a solid wall to mount the inverter.
- Install the inverter at eye level for easy access and monitoring.
- Ensure there is sufficient space for heat dissipation around the inverter.
- The ambient temperature should be between 14 °F and 131 °F (–10 °C to 55 °C) for optimal performance.



⚠ DANGER

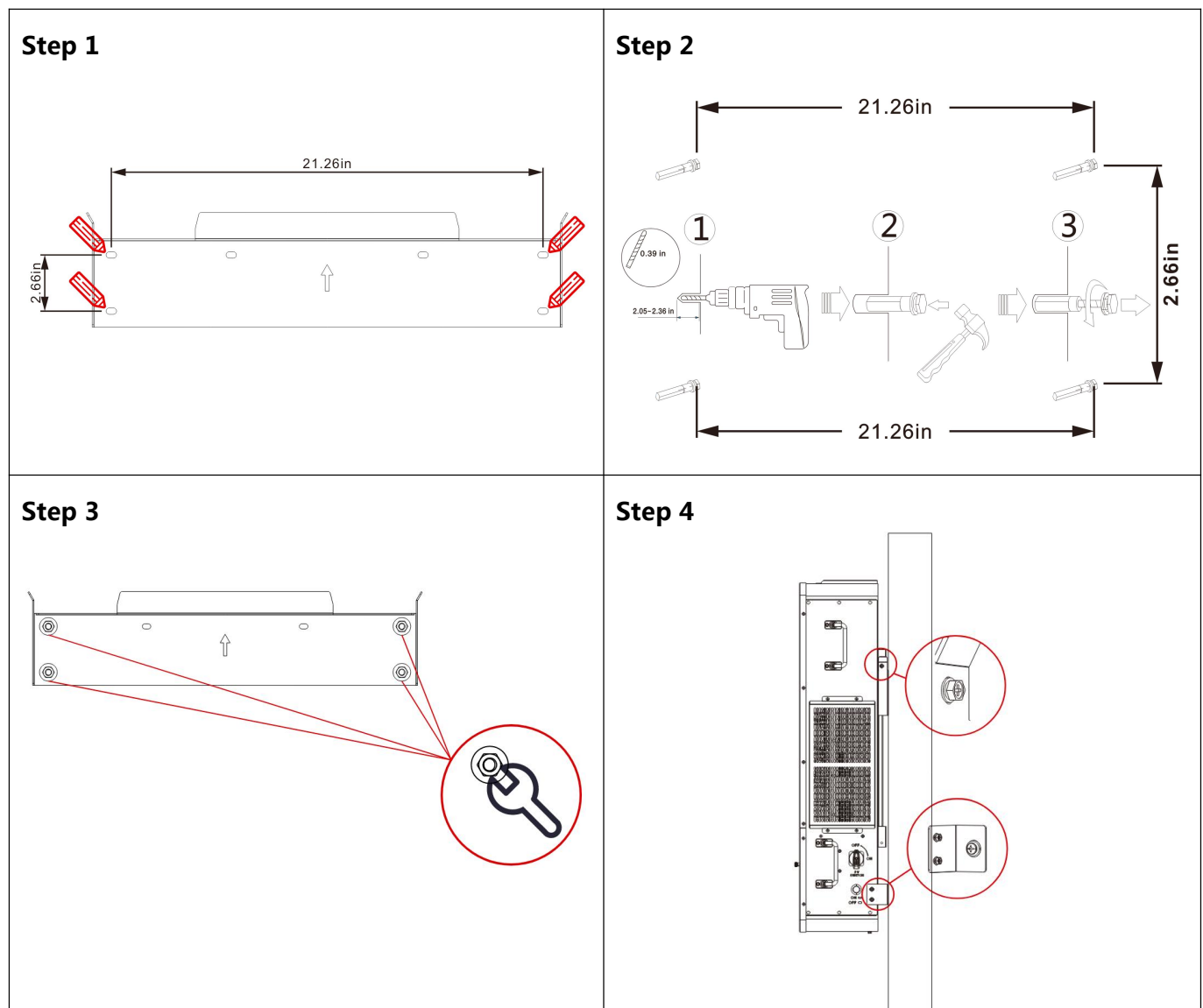
- Do not install the inverter near highly flammable materials.
- Do not install the inverter in areas with a risk of explosion.
- Do not install the inverter in a confined space together with lead-acid batteries.

⚠ CAUTION

- Do not install the inverter in direct sunlight.
- Do not install or operate the inverter in a humid environment.

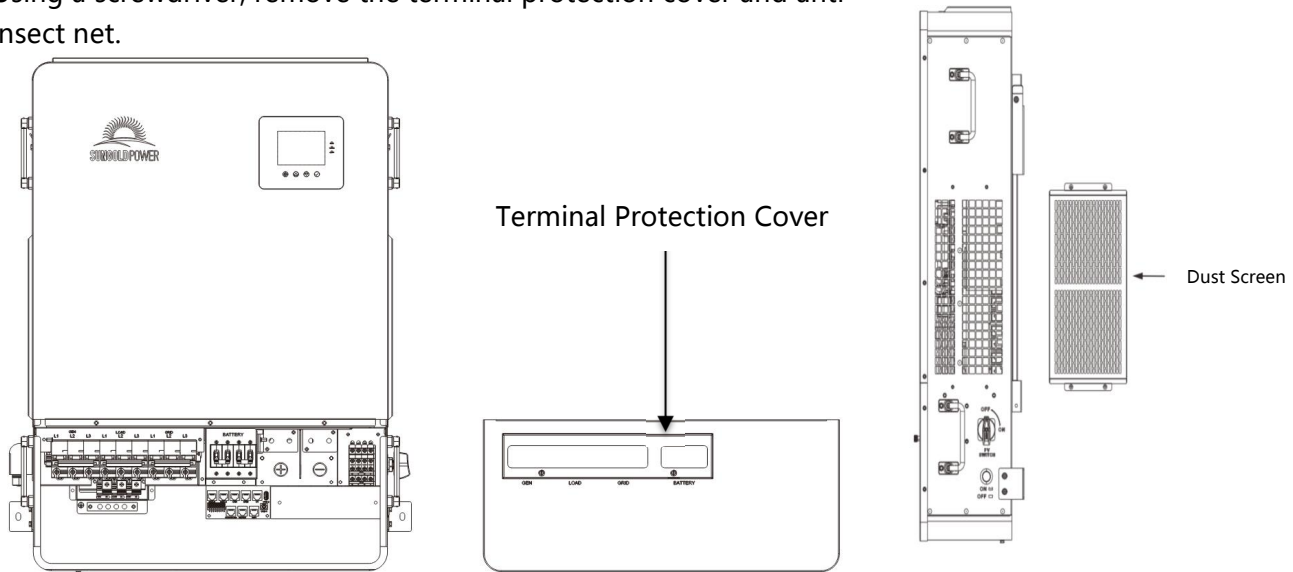
3.2.2 Mounting the Inverter

- **Step 1:** Use the wall-mounting bracket as a template to mark the drilling positions. Ensure the holes are level, mark them clearly with a marker, and drill into the wall using a rotary hammer. Keep the drill perpendicular to the wall to avoid shaking or damaging the surface. If the holes are not aligned properly, remeasure and reposition before drilling.
- **Step 2:** Choose a solid wall with a minimum thickness of 3.15 in (8 cm). Drill four holes at the marked positions (hole diameter: 0.23in/8 mm, depth: 1.77–1.97 in / 45–50 mm). Insert M8 expansion bolts into the holes and securely tighten the nuts.
- **Step 3:** Align the wall-mounting bracket with the drilled holes and firmly attach it to the wall by tightening the expansion bolts and nuts.
- **Step 4:** ①.Slowly hang the inverter onto the bracket using the matching hooks, then tighten the screws on both sides to secure it in place. ②.Mark the positions of the bent feet on both sides according to the hole positions. Remove the bent feet and drill two holes (diameter: 6 mm, depth: 1.38–1.57 in / 35–40 mm). Reinstall the bent feet and secure them with M6 self-tapping screws.



3.2.3 Removing the Terminal Protection Cover

Using a screwdriver, remove the terminal protection cover and anti-insect net.

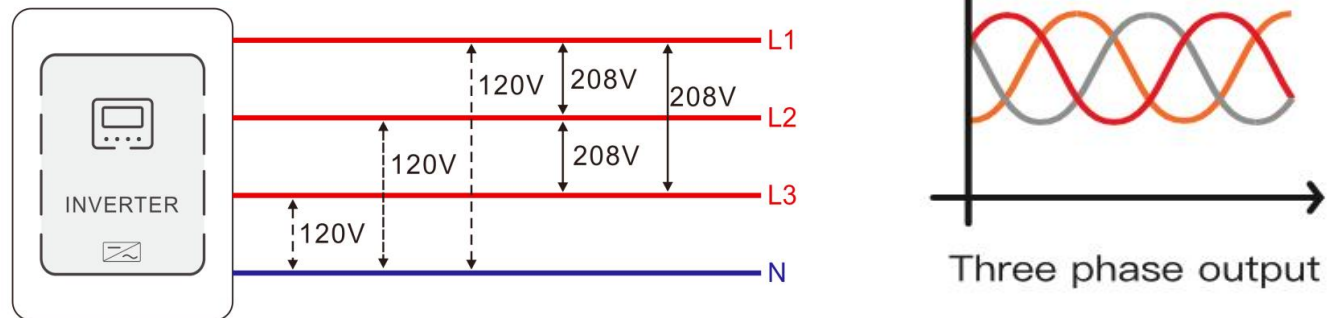


NOTICE

- In areas with poor air quality, dust and airborne particles can accumulate on the dust screen. Regularly remove and clean the dust screen to maintain proper airflow inside the inverter. Failure to do so may reduce air circulation, trigger over-temperature protection (Fault 19/20), and negatively affect the service life of the power supply and inverter.

4.Connection Instructions

4.1 Three-Phase Mode

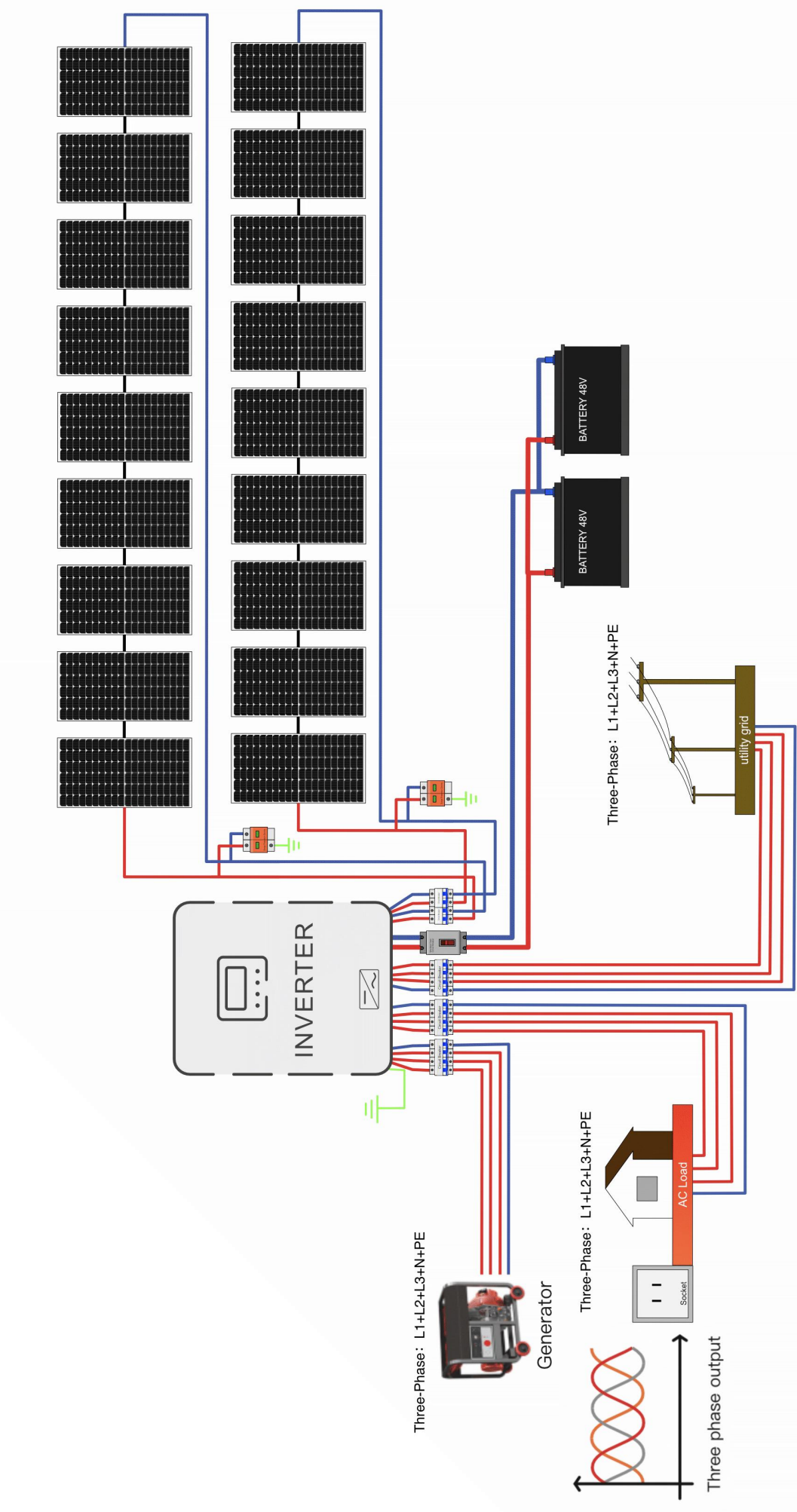


Project	Description
AC Output Phase Voltage (L-N)	(100, 105, 110, 115, 120, 127) Vac, 120 Vac as default
AC Output Line Voltage (L-L)	(173, 182, 191, 199, 208, 220) Vac, 208 Vac as default

NOTICE

- The output voltage can be adjusted via the settings menu. For detailed instructions, see Chapter 5.2.
- Parameter [38] corresponds to the output voltage setting. The output phase voltage can be set within the range of 100 V to 127 V.

Three-phase Mode



This diagram shows three-phase wiring only. Actual wiring depends on site conditions and system configuration.

4.2 Cable & Circuit Breaker Requirement

• PV

Model	Cable Diameter	Max. Input Current	Circuit Breaker Specifications
PowerCore 18K-48	6mm ² / 10AWG	36A	2P-45A

• Battery

Model	Cable Diameter	Max. Input Current	Circuit Breaker Specifications
PowerCore 18K-48	85mm ² / 000AWG	360A	2P-400A

• Grid

Model	Output Mode	Cable Diameter	Max. Input Current	Circuit Breaker Specifications
PowerCore 18K-48	Three-phase	35mm ² /2 AWG (L1/L2/L3/N)	100A	4P-125A

• Generator

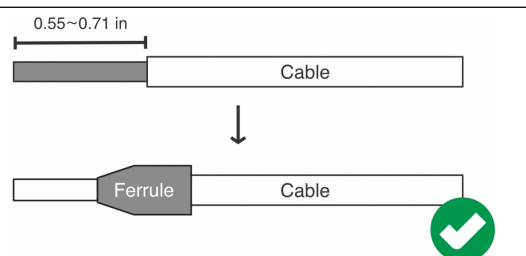
Model	Output Mode	Cable Diameter	Max. Input Current	Circuit Breaker Specifications
PowerCore 18K-48	Three-phase	35mm ² /2 AWG (L1/L2/L3/N)	100A	4P-125A

• Load

Model	Output Mode	Cable Diameter	Max. Output Current	Circuit Breaker Specifications
PowerCore 18K-48	Three-phase	35mm ² /2 AWG (L1/L2/L3/N)	100A	4P-125A

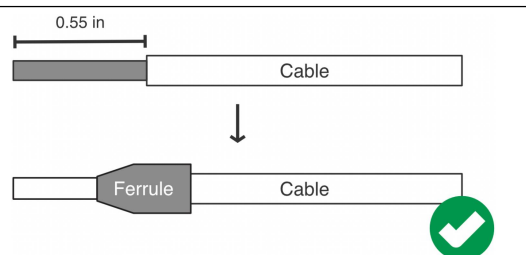
• Grid & Generator input & Load output:

1. Use a wire stripper to remove 0.55~0.71 in of insulation from the cable.
2. Fix the ferrule (to be prepared by the user) at the cable end.



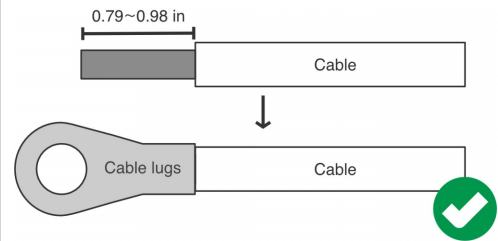
• PV input:

1. Use a wire stripper to remove 0.55 in of insulation from the cable.
2. Fix the ferrule (provided with the package) at the cable end.



• Battery:

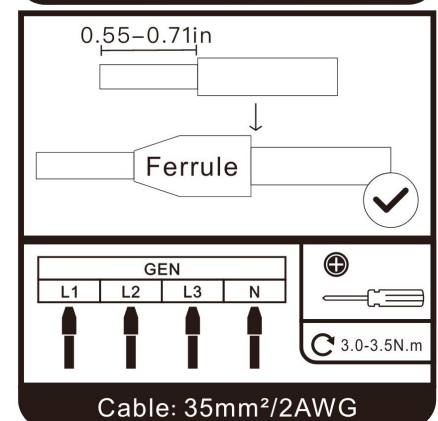
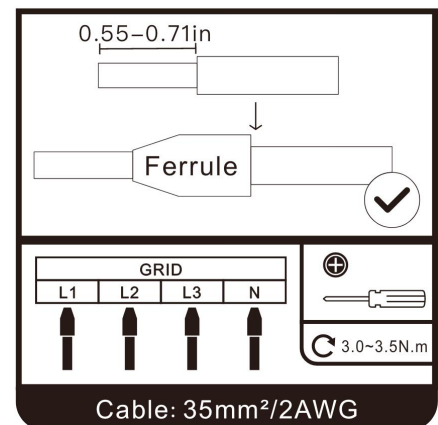
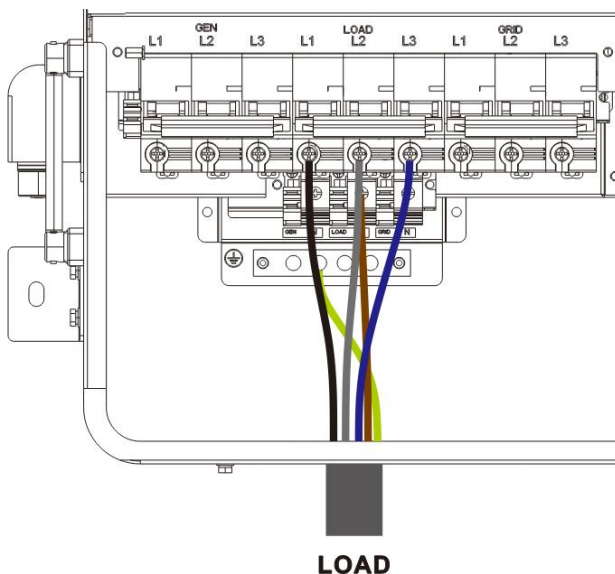
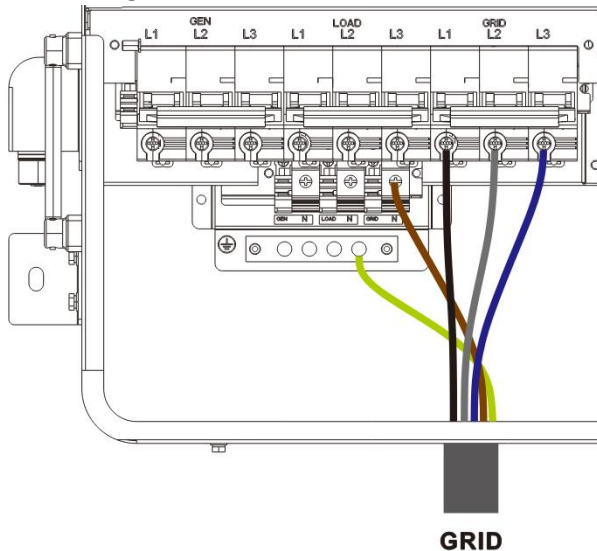
1. Use a wire stripper to remove 0.79–0.98 in (20–25 mm) of insulation from the cable.
2. Attach the cable lugs (provided in the package) to the cable ends.

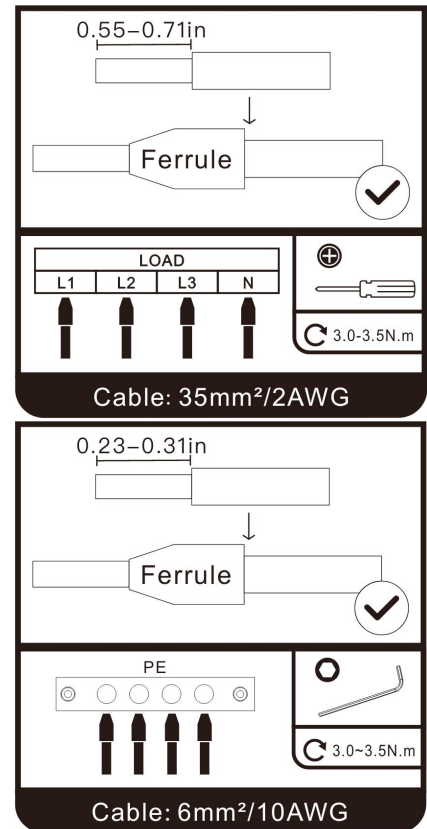
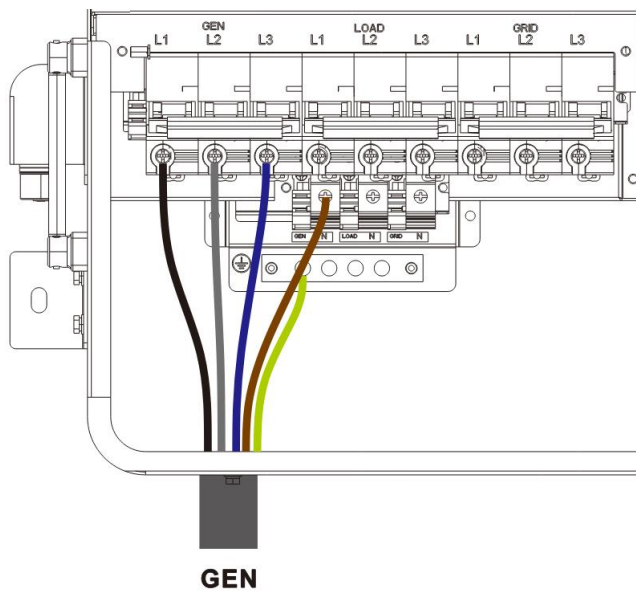


The recommended wire diameter is for reference only. For long distances between the PV array and the inverter, or between the inverter and the battery, using a thicker wire can reduce voltage drop and improve system performance.

4.3 Grid & Load & Generator Connection

Connect the live, neutral and ground wires according to the cables' position and order shown in the diagram below.



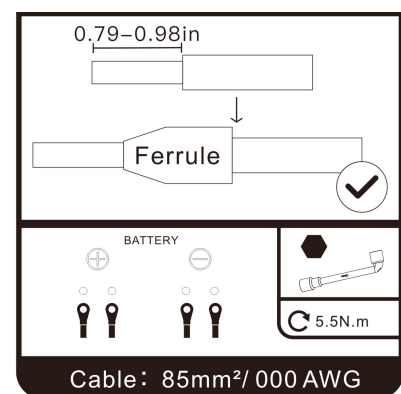
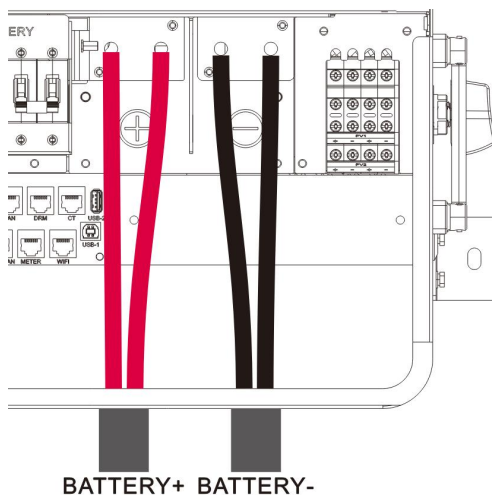


DANGER

- Before connecting the AC input and output, make sure the circuit breaker is turned off to prevent the risk of electric shock. Never work on live circuits.
- Please ensure the cables used meet the required specifications. Undersized or poor-quality cables pose a serious safety hazard.

4.4 Battery Connection

Connect the positive and negative cable of the battery according to the diagram below. It is recommended to use 85 mm² / 000 AWG cables with SC95-8 crimp terminals..



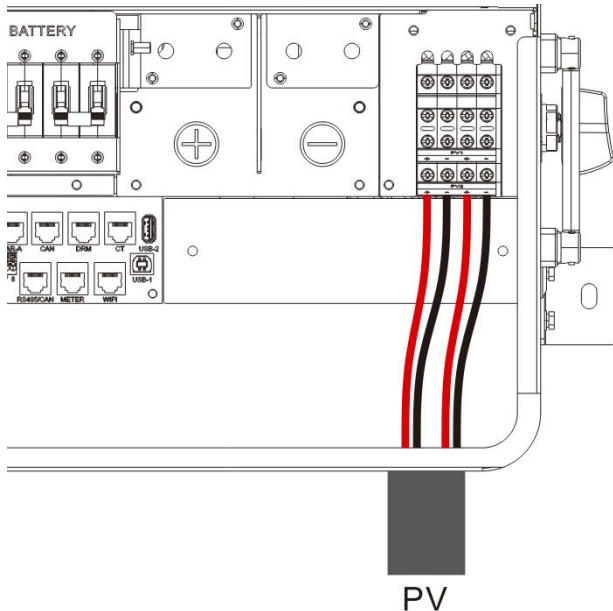
DANGER

Before connecting the battery, ensure the circuit breaker is turned off to avoid the risk of electric shock. Never work on live circuits. Confirm that the battery's positive and negative terminals are connected correctly. Reversing the polarity may damage the inverter. Please check that the cable used is sufficient for the requirements, too thin, poor quality cables are a serious safety hazard.

4.5 PV Connection

Before wiring, disconnect the external circuit breaker first, and confirm whether the cable used is sufficiently thick; refer to Section "4.2 Cable and Circuit Breaker Selection".

Connect the PV input wires according to the cable sequence and terminal positions shown in the diagram below. When using multiple units in parallel, each unit must be connected to a separate PV array or PV source.



⚠ DANGER

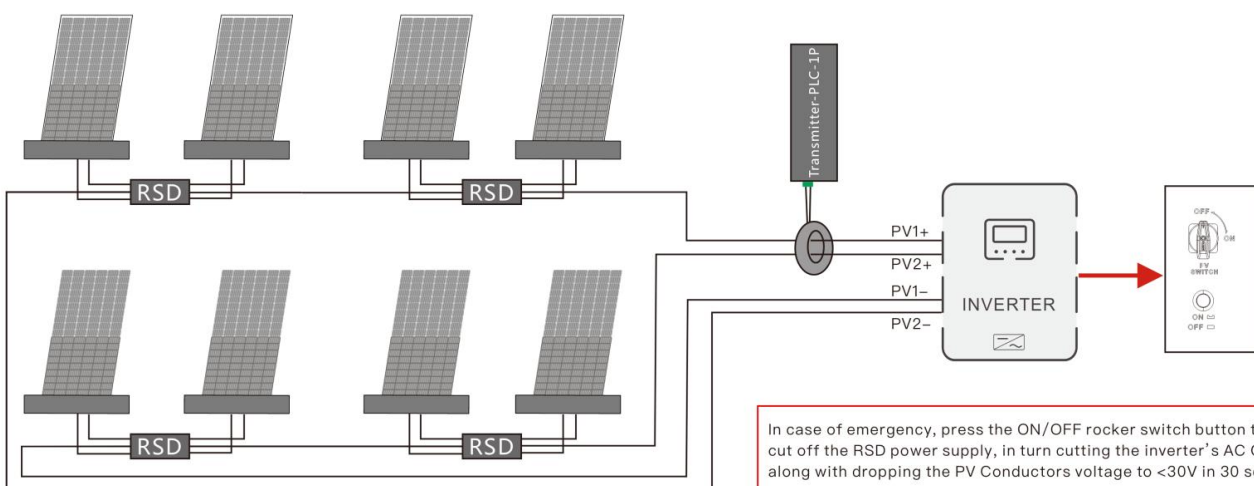
- Before connecting the PV array, ensure the circuit breaker is turned off to prevent the risk of electric shock. Never work on live circuits.
- Verify that the total open-circuit voltage of the PV modules connected in series does not exceed the inverter's maximum open-circuit voltage of 600 V. Exceeding this limit may damage the inverter.

Transmitter-PLC Device (Optional)

The inverter includes a rapid shutdown system that complies with 2017 and 2020 NEC 690.12 requirements.

A rapid shutdown switch should be connected to the RSD terminals on the inverter and mounted on a readily accessible outdoor location (check with your AHJ for requirements). The APsmart Rapid Shutdown System Transmitter-PLC works as part of the rapid shutdown solution when paired with APsmart RSD, a PV module rapid shutdown unit. While powered on, the Transmitter-PLC sends a signal to the RSD units to keep their PV modules connected and supplying energy.

RSD units automatically enter rapid shutdown mode when the Transmitter-PLC is switched off and resume energy production when power is restored.

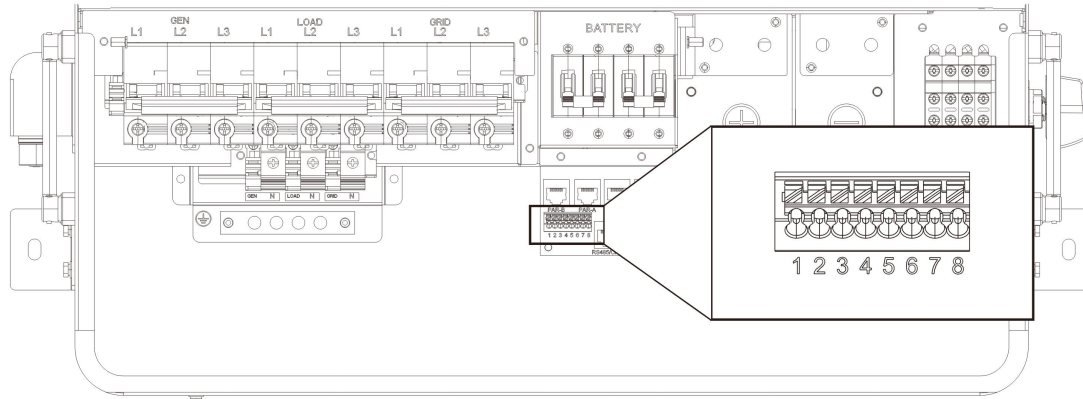


In case of emergency, press the ON/OFF rocker switch button to cut off the RSD power supply, in turn cutting the inverter's AC Output along with dropping the PV Conductors voltage to <30V in 30 seconds.

4.6 Dry Contact Connection

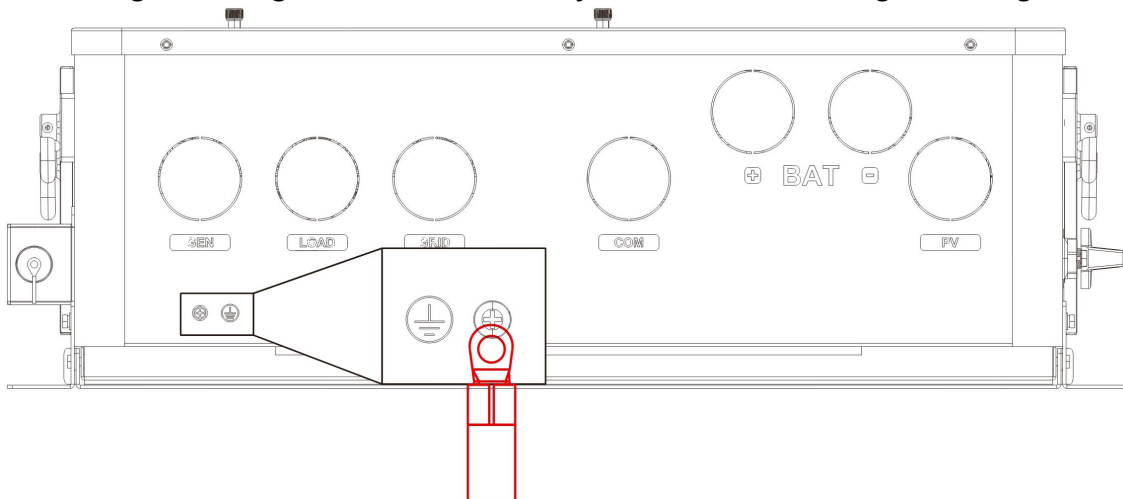
Use a small screwdriver to push back the direction indicated by the arrow, then insert the communication cable into the dry junction port.

(Communication cable diameter 0.2~1.5mm²)



4.7 Grounding Connection

Ensure that the grounding terminal is securely connected to the grounding bar.



NOTICE

The grounding conductor shall have a minimum cross-sectional area of 4 mm² and shall be routed as close as possible to the grounding point.

4.8 Inverter Start-Up

After confirming that all wiring connections are secure and the cable sequence is correct, reinstall the terminal protection cover.

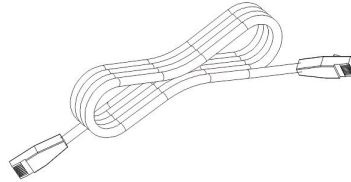
- **Step 1:** Turn ON the battery circuit breaker.
- **Step 2:** Press the ON/OFF switch on the side of the inverter. When the display and indicator LEDs illuminate, the inverter has been successfully powered on.
- **Step 3:** Turn ON the circuit breakers in the following order: PV input, AC input, AC output
- **Step 4:** Energize the loads one by one, starting with low-power loads and gradually adding higher-power loads.

4.9 Parallel Connection

4.9.1 Overview of Parallel Operation

- A maximum of six (6) units may be connected in parallel.
- When the parallel operation function is used, the following interconnection cables (supplied accessories) shall be securely and properly connected.

Parallel communication cable *1



4.9.2 Precautions for Parallel Connection Cables



Warning

1. PV Connection

When operating in parallel, the PV arrays connected to each inverter shall be independent of one another.

In addition, the PV arrays connected to the PV1 and PV2 ports of the same inverter shall also be independent.

2. Battery Connection

When operating in parallel, all solar energy storage inverters shall be connected to the same battery bank, with BAT+ connected to BAT+ and BAT– connected to BAT–.

Before powering on the system, verify that all connections are correct and that the cable length and conductor size are properly matched. Incorrect wiring may cause abnormal parallel system operation or output failure.

3. Load Connection

When operating in parallel, all inverters shall be connected with Neutral-to-Neutral (N-to-N) and Protective Earth-to-Protective Earth (PE-to-PE).

The Line (L) conductors of inverters operating on the same phase shall be connected together. Line conductors of different phases shall not be interconnected.

All other precautions are the same as those for single-phase parallel operation. Refer to the wiring schematic for details.

4. Grid Connection

When operating in parallel, all inverters shall be connected with Neutral-to-Neutral (N-to-N) and Protective Earth-to-Protective Earth (PE-to-PE).

The Line (L) conductors of inverters operating on the same phase shall be connected together. Line conductors of different phases shall not be interconnected.

Refer to the wiring schematic for proper connection.

5. Communication Lines

The parallel communication cable is a 8-pin communication cable (RJ45) suitable for both single-phase and three-phase parallel systems.

Each inverter shall have one communication input and one communication output.

In a parallel system, the "Parallel A" interface of one inverter must be connected to the "Parallel B" interface of the target inverter.

It is strictly prohibited to connect the "Parallel A" interface to the "Parallel B" interface of the same inverter, or to the "Parallel A" interface of another inverter.

Ensure that all communication cables are securely fastened to the 8-pin connectors to prevent loose connections, poor contact, abnormal system operation, or output damage.

6. Wiring Verification

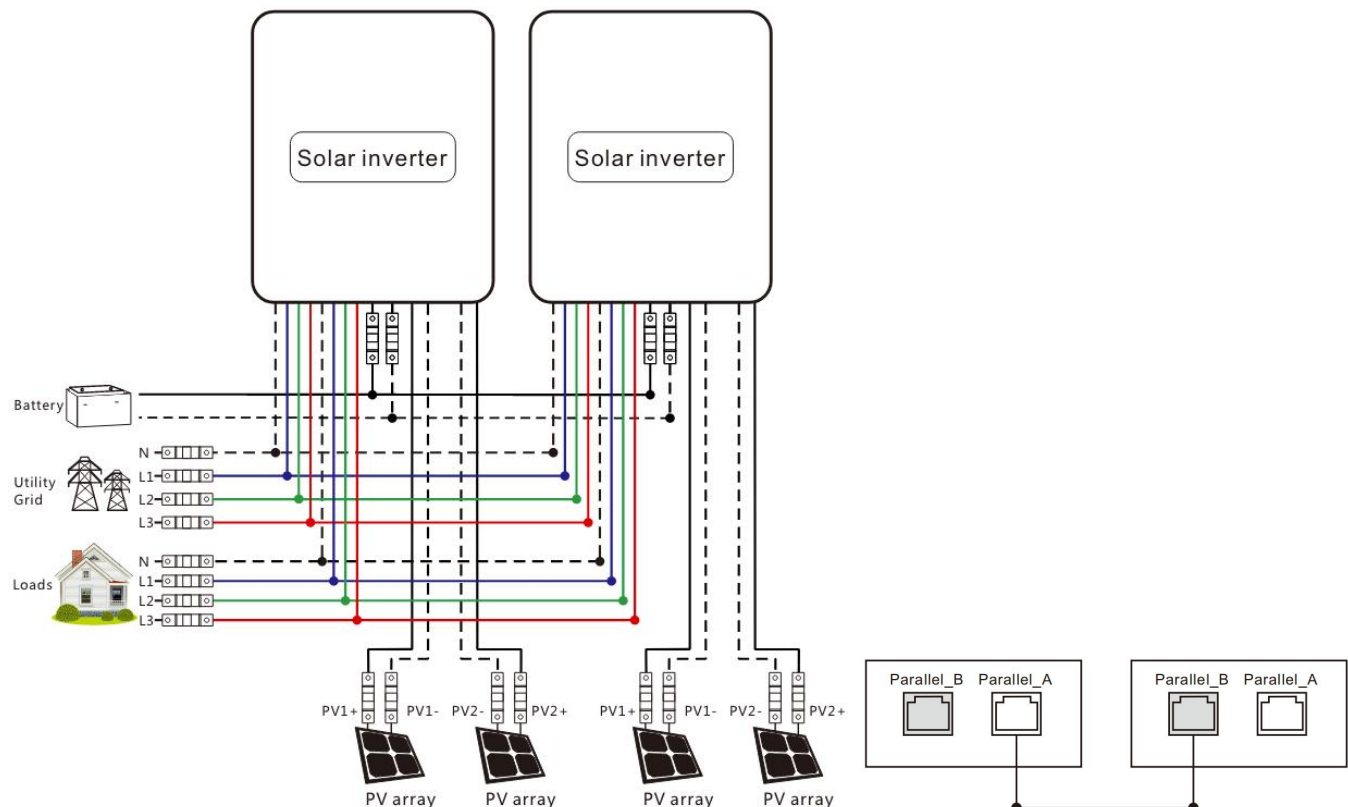
Before and after connecting the system, carefully refer to the system wiring diagram below.

Ensure that all connections are correct and securely fastened before powering on the system.

7. Adding an Inverter to an Existing Parallel System

If an additional inverter needs to be installed after the system has been powered on and is operating normally, disconnect the battery input, PV input, AC input, and AC output, and ensure that all inverters are completely powered off before reconnecting the system.

4.9.3 Parallel Connection Schematic

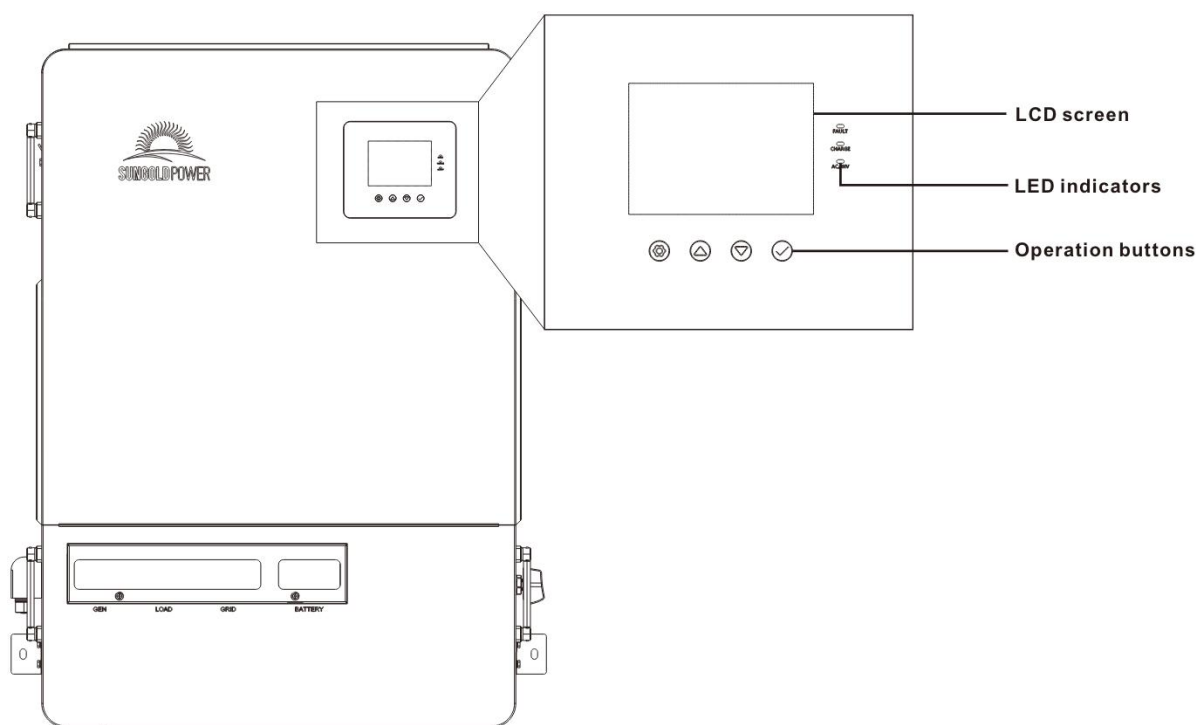




5.Operation

5.1 Operation and Display Panel

The operation and display panel consists of one (1) LCD screen, three (3) LED indicators, and four (4) operation buttons, as shown below.



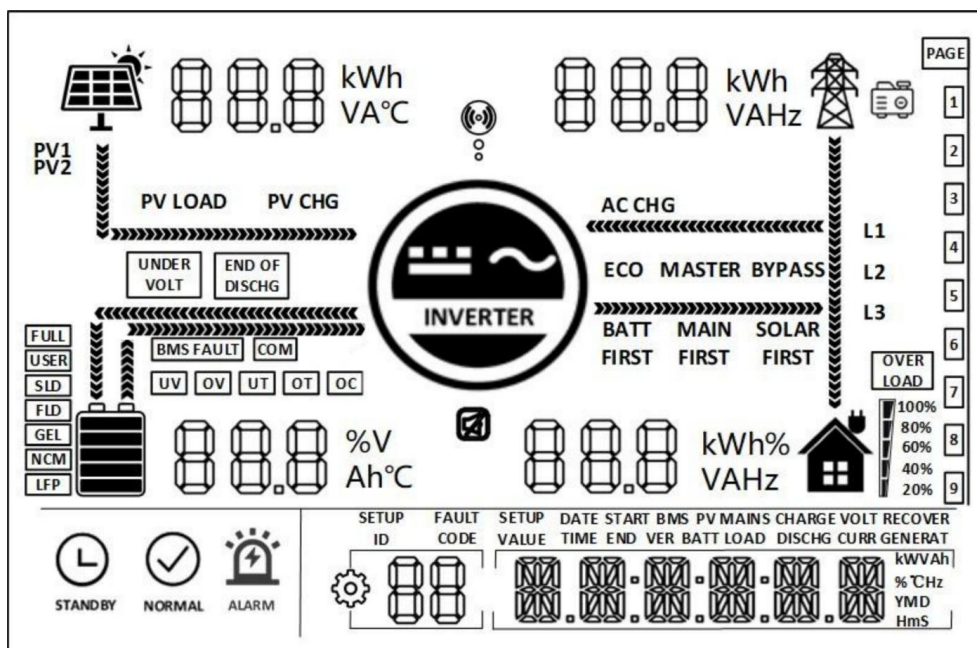
● Operation buttons

Button	Description
	Enter/Exit Settings Menu
	Go to Previous Selection
	go to next selection
	confirm/enter selection in settings menu

● LED indicators

Indicator	Color	Description
AC/INV	Yellow	Steady On: Mains Bypass Output Active
		Flashing: Inverter Output Active
CHARGE	Green	Steady on: Charging completed
		Flashing: Charging in progress
FAULT	Red	Flashing: Primary Fault Detected
		Steady On: Secondary Fault Detected
		Off: Level 3 or Level 4 Fault Detected

● Display Panel

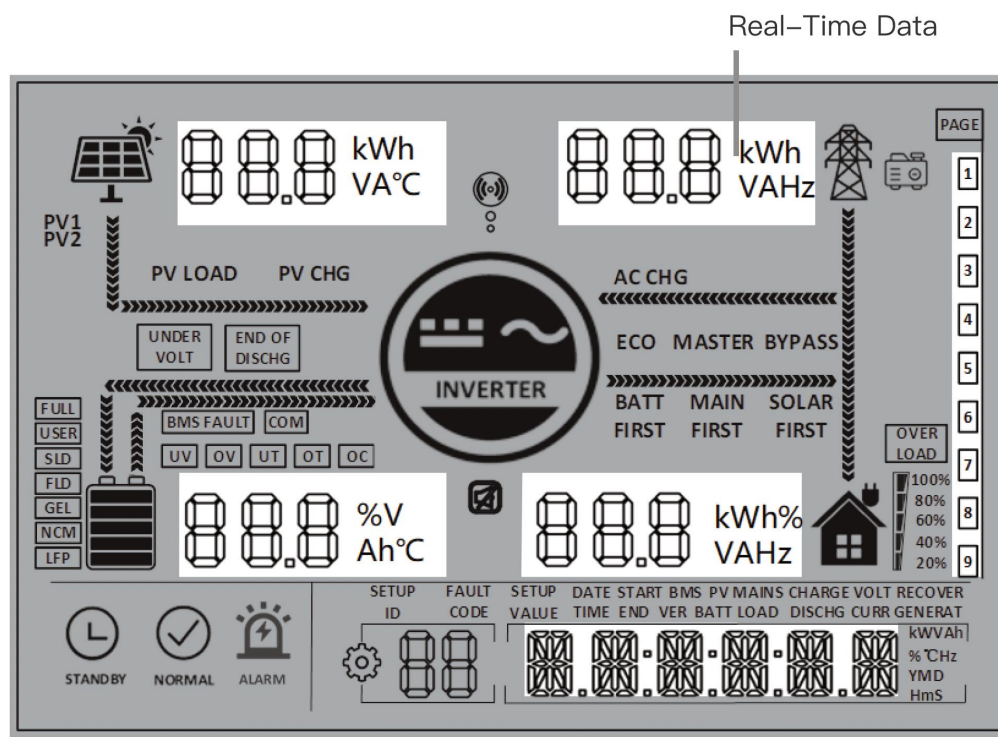


Icon	Description	Icon	Description
	Solar Panel		Grid
	Battery		Generator
	Inverter Working Status		Home load
	The inverter is communicating with the data collector		The buzzer is in mute mode
	Power Flow Direction		
 STANDBY	The inverter is in standby mode	 NORMAL	The inverter is working normally
 ALARM	There is a fault		Settings
	Load power: 80%–100%		Battery level displayed: 80%–100%
	Load power: 60%–79%		Battery level displayed: 60%–79%
	Load power: 40%–59%		Battery level displayed: 40%–59%
	Load power: 20%–39%		Battery level displayed: 20%–39%
	Load power: 5%–19%		Battery level displayed: 5%–19%
	Battery under-voltage		Battery over-discharge

OVER LOAD	Overload	BMS FAULT	BMS fault
COM	System communication error	UV	System under-voltage
OV	System overvoltage	UT	System temperature too low
OT	Too high system temperature	OC	System over-current
FULL	Battery full power	USER	User-defined battery
SLD	Sealed lead-acid battery	FLD	Flooded lead-acid battery
GEL	Gel lead-acid battery	NCM	Ternary Li-ion battery
LFP	LFP Li-ion battery	ECO	Energy-saving mode
PV LOAD	PV power is carrying the load	PV CHG	PV power is charging the battery
AC CHG	AC input power is charging the battery	MAINS FIRST	The output mode of the inverter is mains first
BYPASS	The output mode of the inverter is mains bypass	SOLAR FIRST	The output mode of the inverter is Solar first
BATT FIRST	The output mode of the inverter is battery first		

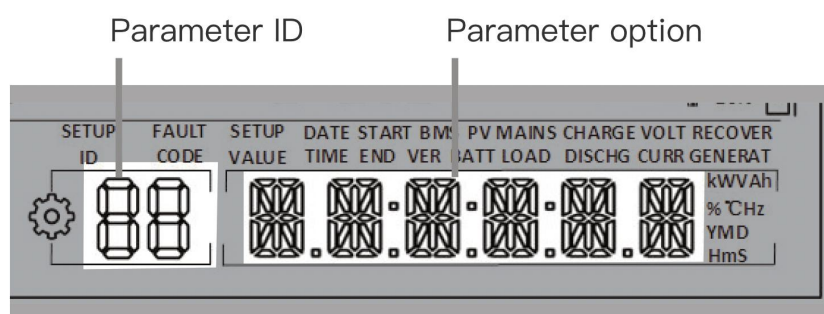
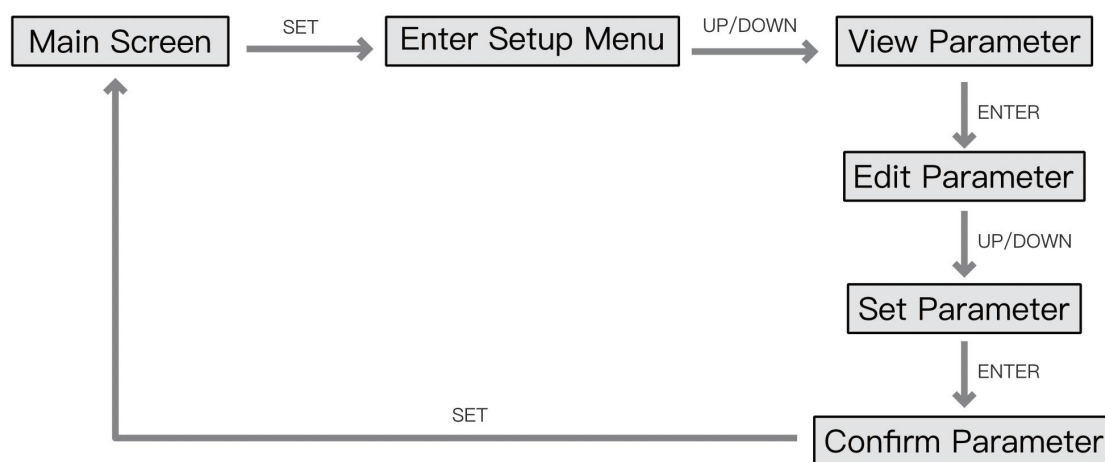
● View real-time data

On the screen, press the UP/DOWN button to view real-time data of the inverter in operation.



Page	PV	Battery	AC input	Load	General
1	PV input voltage	Battery voltage	AC input voltage	Load phase voltage	Current time
2	PV input current	Battery current	AC input current	Load phase current	Current date
3	PV input power	Battery power	AC total input power	Load phase active power	Total PV power generation
4	PV daily power generation	BMS battery voltage	AC daily charging capacity	Load phase apparent power	Total load power consumption
5	PV - side heat sink temperature	Battery SOC	AC frequency	AC output frequency	RS485 address
6	INV heat sink temperature	Max. charging current	Bus voltage	UPS phase active power	Main chip software version
7	BAT heat sink temperature	Max. Grid charging current	Maximum Grid / Generator Current	UPS phase apparent power	Slave chip software version
8		Max. Diesel generator charging current	Home load active power	Secondary load phase active power	Parallel operation mode
9				Secondary load phase apparent power	Customer ID

5.2 Setting



ID	Parameter	Option	Description
Battery voltage setting logic: 【15】 < 【12】 < 【04】 < 【14】 < 【35】 < 【37】 < 【05】 < 【09/11】			
00	Exit	ESC	Exit the setup menu.
01	AC output mode	UTI	PV Power Priority with Load When PV power is insufficient, the load is supplied jointly by the PV and the grid. When PV power exceeds the load demand, the surplus power is used to charge the battery. Grid charging is activated only when the battery is over-discharged. If Parameter [06] is set to "OSO (Only PV)", the grid will not charge the battery. The battery discharges during the scheduled discharge period or when operating in off-grid mode.
		SBU	The system prioritizes the use of PV power to supply the load. The grid supplies the load only when the battery voltage falls below the set value in Parameter [04] or during battery under-voltage. When connected to a BMS, this condition is triggered when the SOC is less than or equal to the value specified in Parameter [61] or [59]. Once the battery voltage rises above the set value in Parameter [05] or reaches the preset full-charge threshold, the system switches back from the grid to PV to supply the load. When connected to a BMS, this condition applies when the SOC is greater than or equal to the value specified in Parameter [62] or [60].
		SUB default	PV power is used first to charge the battery. When PV power is insufficient, the battery is charged by a combination of PV power and the grid. If Parameter [06] is set to "OSO (Only PV)", the grid will not be used for charging. The grid will simultaneously supply power to the loads. When PV power exceeds the battery charging demand, the surplus PV power is combined with the grid to supply power to the loads. The battery discharges during the scheduled discharge period or when operating in off-grid mode.
		SOL	PV power is used to supply the load whenever available. If PV power is unavailable, or the battery voltage falls below the set value in Parameter [04] or under-voltage occurs, the system will switch to grid mode.
02	AC output frequency	50.0	In grid mode, the AC output frequency will synchronize with the grid frequency. When operating off-grid, the AC output frequency will follow the preset values.
		60.0 default	

03	AC input voltage range	UPS default	When the output phase voltage is 120 V, the input phase voltage range is 90–140 V. UPS input frequency range: For 50 Hz systems: 47–55 Hz For 60 Hz systems: 57–65 Hz
		APL	When the output phase voltage is 120V, the input phase voltage range is 90-140V. APL frequency range: 40-70Hz.
04	Voltage point of battery switch to grid	49.2 default	When parameter [01] = SBU/SOL , output source will switch to grid from battery when the battery voltage below the preset value. Setting range: 40~52V.
05	Voltage point of grid switch to battery	56.8 default	When parameter [01] = SBU/SOL , output source will switch to battery from grid when the battery voltage above the preset value. Setting range: 48~60V.
06	Battery charging mode	SNU default	PV and Grid Hybrid Charging (PV Priority) PV power is used to charge the battery first. When PV power is insufficient, grid charging supplements it. When PV power is sufficient to meet the charging demand, grid charging stops. Note: PV and grid charging can occur simultaneously only when the system is operating in grid bypass mode. In inverter mode, only PV charging is active.
		OSO	Only PV charging, without activating grid charging.
07	Battery charging current	275A	Corresponding to PowerCore 18K-48, setting range: 0~300A
08	Battery type	USER	User-defined, user can set all battery parameter.
		SLd	Sealed lead-acid battery.
		FLd	Flooded lead-acid battery.
		GEL	Gel lead-acid battery.
		L14/ L15/ L16 default	L14/ L15/ L16 lithium iron phosphate batteries, corresponding to lithium iron phosphate batteries 14, 15, 16 series.
		N13/ N14	Ternary lithium batteries, N13/N14, corresponding to ternary lithium batteries 13 series, 14 series.
		No bat	No battery.
09	Boost charging voltage	56.8 default	Setting range 48V~58.4V, step 0.4V, valid when battery type is custom and lithium iron phosphate battery.
10	Boost charging maximum time	120 default	Boost charging maximum time setting, refers to the constant voltage charging when the voltage reaches the parameter [09] setting voltage maximum charging time, set the range of 5min~900min, step of 5 minutes.
11	Battery float charging voltage	56.8 default	Setting range 48V~58.4V, step 0.4V, this parameter can not be set after the BMS communication is successful.

12	Battery over - discharge voltage (delayed shutdown)	48.8 default	When the battery voltage is lower than the judgement point, and triggers the parameter [13], the inverter output is switched off, the setting range is 40V~51V.
13	Battery over-discharge delay time	30 default	The battery voltage is lower than parameter [12], and the inverter output is switched off after triggering the delay time set in this parameter, the setting range is 5s~50s, the step is 5s.
14	Battery under-voltage alarm point	49.6 default	When the battery voltage is lower than this judgement point, the device will under-voltage alarm, the output will not be switched off, the setting range is 40V~52V, the step is 0.4V.
15	Battery discharge limiting voltage	43.2 default	When the battery voltage is lower than this parameter value, the output will be turned off immediately. The setting range is 40V~52V, the step is 0.4V.
16	Battery equalization charging	DIS default	Disable equalization charging.
		ENA	Enable equalization charging, valid when battery type is FLd, SLd, and USER.
17	Battery equalization charging voltage	58	Setting range 48V~58V in 0.4V steps, valid when battery type is FLd, SLd, and USER.
18	Battery equalization charging duration	120	Setting range 5min~900min in 5 min steps, valid when battery type is FLd, SLd, and USER.
19	Battery equalization charging delay time	120	Setting range 5min~900min in 5 minute steps, valid when battery type is FLd, SLd, and USER.
20	Battery equalization charging interval	30	Setting range 0~30 days in 1 day steps, valid when battery type is FLd, SLd, and USER.
21	Battery equalization charging stop-start	DIS default	Stop equalization charging immediately.
		ENA	Start equalization charging immediately
22	Energy-saving mode	DIS default	Disable energy-saving mode.
		ENA	Enable energy-saving mode, When Energy-Saving Mode is enabled, the inverter output will turn off after a 5-minute delay if the load power is below 25 W. When the load power exceeds 50 W, the inverter will automatically restart.
23	Overload automatic restart	DIS	Disable overload automatic restart, if an overload occurs to shut down the output, the machine will not be restored to power on again.
		ENA default	Enable overload automatic restart. If an overload occurs that shuts down the output, the machine delays for 3 minutes before restarting the output. After accumulating 5 times, it will not restart again.

24	Over-temperature auto restart	DIS	Disable over-temperature auto restart and when over-temperature occurs, it will turn off the output and the inverter will no longer turn on the output.
		ENA default	Enable over-temperature auto restart and when over-temperature occurs, it will turn off the output and the output will restart when the temperature drops.
25	Buzzer alarm	DIS	Disable buzzer alarm.
		ENA default	Enable buzzer alarm.
26	Mode change alarm	DIS	Disable alarm prompt when the status of the main input source changes.
		ENA default	Enable alarm prompt when the status of the main input source changes.
27	Inverter overload switch to bypass	DIS	Disable automatic switching to grid to power the load when the inverter is overloaded.
		ENA default	When the inverter is overloaded, it automatically switches to grid to power the load.
28	Grid charging current	180A	Corresponds to PowerCore 18K-48, setting range: 0~360A.
29	BMS fault causes the battery to stop working.	DIS default	Disable BMS Faulty battery stops working.
		ENA	Enable BMS Faulty battery stops working.
30	RS485 communication address	ID: 1	RS485 address setting range: 1~253.
31	AC output mode (can be set in the standby mode only)	SIG default	When single inverter is used, the default is SIG mode.
		PAL	In parallel operation.
32	RS485 communication	DIS default	Disable the BMS communication function.
		485	RS485 BMS communication function.
		CAN	CAN BMS communication function.
33	BMS communication	When item [32] = 485 / CAN, the corresponding lithium battery manufacturer brand should be selected for communication.	
		WOW default	485 protocol: PAC=PACE, RDA=RITAR, AOG=ALLGRAND , OLT=OLITER, CEF=CFE, XWD=SUNWODA, DAQ=DYNESS, WOW=SNPOWER, PYL=PYLONTECH , VOL=VILION, SGP=SUNGOLDPOWER, GSL=GSL Energy, PYT=Pylon tech 2, LUX=LUX POWER, DUNEXT=NATON, DYE=DEYE, SHO=MAITIAN , GUX=Gotion
			CAN protocol: UZE=YUZE, SGP=SUNGOLDPOWER, GSL=GSL Energy, PYT=Pylon tech 2, WOW=SNPOWER, LUX=LUX POWER, DUNEXT=NATON
34	Anti-reverse current	DIS default	Disable this function.

		HOME LOAD	When Parameter [01] = UTI: PV power is prioritized for supplying the load. Any excess energy is first controlled by the anti-backflow function, and any remaining surplus is used to charge the battery. When Parameter [01] = SUB: PV power is prioritized for charging the battery. After the battery's charging requirements are met, the remaining PV power is used to supply the load. Any further surplus energy is controlled by the anti-backflow function.
35	Battery under-voltage recovery point	52.8V default	When the battery is under-voltage, the battery voltage needs to be higher than this setting value in order to restore the battery inverter AC output, setting range: 44V~54.4V.
37	Battery full charge and recharging recovery point	53.6V default	Inverter stops charging when the battery is full. Inverter resumes charging when the battery voltage below this value. Setting range: 44V~54V.
38	AC output phase voltage	120Vac default	Setting range: 100/105/110/115/120/127Vac.
39	Charging current limiting method (when BMS is enabled)	LCSET	[SET] The maximum battery charging current is limited according to the setting in parameter[07].
		LCBMS default	[BMS] Default Maximum battery charging current is limited according to the current limit value of the BMS.
		LC INV	[INV] Maximum battery charging current is limited by the machine's derating logic.
40	1st slot grid start charging	00:00:00 default	Setting range: 00:00:00-23:59:00.
41	1st slot grid end charging	00:00:00 default	Setting range: 00:00:00-23:59:00.
42	2nd slot grid start charging	00:00:00 default	Setting range: 00:00:00-23:59:00.
43	2nd slot grid end charging	00:00:00 default	Setting range: 00:00:00-23:59:00.
44	3rd slot grid start charging	00:00:00 default	Setting range: 00:00:00-23:59:00.
45	3rd slot grid end charging	00:00:00 default	Setting range: 00:00:00-23:59:00.
46	Time slot grid charging function	DIS default	Disable this function.
		ENA	When the segmented scheduled grid charging function is enabled, grid charging will only be performed during the set charging time periods.
47	1st slot battery start discharging	00:00:00 default	Setting range: 00:00:00-23:59:00.
48	1st slot battery end discharging	00:00:00 default	Setting range: 00:00:00-23:59:00.
49	2nd slot battery start discharging	00:00:00 default	Setting range: 00:00:00-23:59:00.

50	2nd slot battery end discharging	00:00:00 default	Setting range: 00:00:00-23:59:00.
51	3rd slot battery start discharging	00:00:00 default	Setting range: 00:00:00-23:59:00.
52	3rd slot battery end discharging	00:00:00 default	Setting range: 00:00:00-23:59:00.
53	Time slot battery discharging function	DIS default	Disable this function.
		ENA	After enabling the segmented timed battery discharge function, the battery will discharge only during the specified discharge period.
54	Local date	00:00:00	YY/MM/DD. Setting range: 00:01:01-99:12:31.
55	Local time	00:00:00	Setting range: 00:00:00-23:59:59.
56	Leakage current detection protection	DIS default	Disable detecting Leakage current value.
		ENA	Enable detecting Leakage current value.
57	Stop charging current	3	Charging stops when the charging current is less than this setting (unit: A).
58	Discharging alarm SOC setting	15	Triggers an alarm when the battery SOC is less than the set value (unit: %, valid only when BMS communication is normal).
59	Discharging cut-off SOC setting	5	Stops discharging when the battery SOC is less than the set value (unit: %, valid only when BMS communication is normal).
60	Charging cut-off SOC setting	100	Stops charging when the battery SOC is higher than the set value (unit: %, valid only when BMS communication is normal).
61	Switching to grid SOC setting	10	Switch to grid power when the battery SOC is less than this setting value (unit: %, valid only when BMS communication is normal).
62	to inverter output SOC setting	100	Switches to inverter output mode when SOC is higher than this setting value (unit: %, valid only when BMS communication is normal).
63	N-PE bonding automatic switching function	DIS default	Disable automatic switching of N-PE connections.
		ENA	Enable automatic switching of N-PE connections.
68	AC output phase mode (turn off the rocker switch can be set)	THREE default	For three-phase four-wire system, where the mains input has a N line connected.
		3 NO N	For three-phase three-wire system, where the mains input has no N line connected.
70	Insulation impedance detection	DIS default	Disable detecting insulation impedance value.
		ENA	Enable detecting insulation impedance value.
73	Generator charging current setting	180A	Configurable when the generator is GEN_IN, with a maximum of 360A for PowerCore 18K-48
74	Generator power setting	36kW	Configurable when the generator is GEN_IN. For PowerCore 18K-48, the maximum is 36kW, corresponding to a maximum generator input of 18kW for charging and 18kW for load supply.

76	External CT transformation ratio	3000	Setting range: 0~5000
77	External CT anti-backflow error power	100W default	The threshold can be set between 0 W and 500 W. This means that, to prevent power sampling errors, 0–500 W of power will be drawn from the grid to ensure that no backflow occurs.
78	Battery hybrid load discharging current setting	360A	PowerCore 18K-48, Setting Range: 0-360A
79	AFCI enable	DIS default	Disable AFCI function.
		1-10	Enable AFCI function. Detection Threshold: 1–10
80	AFCI fault manual clearing	NULL default	Do not clear.
		CLEAR	Manually clear the AFCI fault.
81	Generator operating mode	GEN IN default	Generator interface used as generator function input.
		AC OUT	Generator interface used as secondary load port output.
82	CT manual enabling	NO CT default	No CT input.
		TO INV	CT direction set to inverter flow as positive direction.
		TO GRD	CT direction set to grid flow as positive direction.

NOTICE

● Parameter Configuration Requirement : Parameters [30], [31], [63], and [81] must be configured while the system is in standby mode.

● Procedure for Restoring Factory Settings

Step 1: Press and hold the UP and DOWN operation keys simultaneously until the border around the time display begins to flash, indicating that the system has entered factory reset mode.

Step 2: At this point, power off the device and restart it to complete the factory reset successfully.

If factory reset mode is accidentally triggered during operation, press and hold the UP and DOWN keys again until the border around the time display stops flashing. This indicates that the system has successfully exited factory reset mode.

5.3 AC Output Mode

The AC output mode corresponds to Parameter [01] and Parameter [34], allowing the user to manually select the AC output power source.

● Utility Priority/ PV Loading Priority 01 UTI

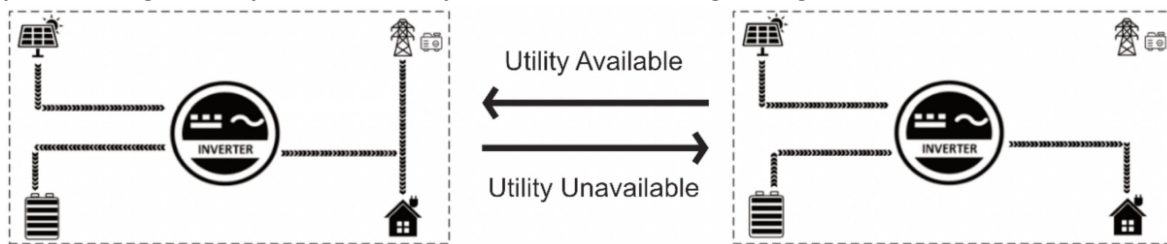
PV power is prioritized for supplying the load.

When PV power is insufficient, the grid and PV jointly supply the load.

When PV power exceeds the load demand, the surplus energy charges the battery.

Grid charging is activated only when the battery is over-discharged.

If Parameter [06] is set to "OSO (Only PV)", the grid will not be used for charging. The battery discharges only when the system is operating off-grid.



● Utility Priority/PV Charging Priority 01 SUB (default)

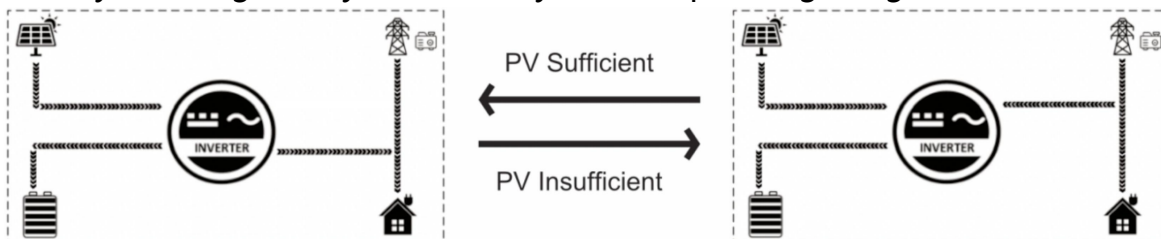
PV power is prioritized for charging the battery.

When PV power is insufficient, the battery is charged using a combination of PV power and utility power.

If Parameter [06] is set to "OSO (Only PV)", utility power will not be used for charging. Utility power will simultaneously supply the load as needed.

When PV power meets the battery charging demand but cannot fully meet the load demand, PV and utility power will supply the load together (hybrid loading).

The battery discharges only when the system is operating off-grid.



● PV Priority Output 01 SOL

PV power is prioritized for supplying the load.

When PV power exceeds the load demand, the surplus charges the battery.

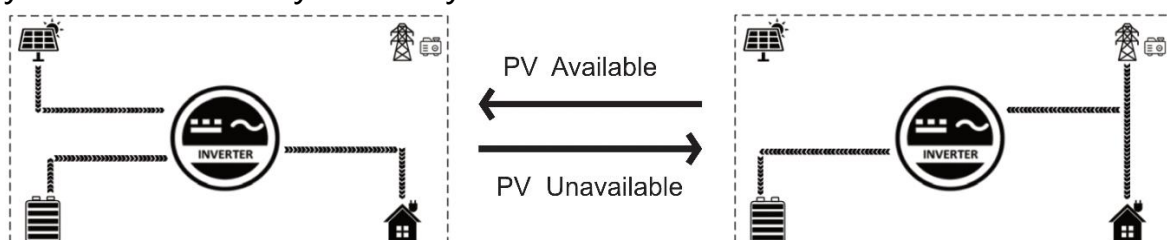
When PV power is insufficient to meet the load, the battery supplements the power.

When PV is unavailable, the system switches to utility power, and battery power is used only as a last resort.

If PV power is insufficient and the battery level falls below the Battery-to-Utility threshold or the SOC value set for switching to utility, the system switches to utility power for both the load and battery charging. PV charges the battery when the load is low or absent.

Overview: This mode maximizes the use of PV power generation while maintaining battery capacity and is suitable for areas with stable utility grids.

Priority Order: PV > Utility > Battery



●PV & Battery First Output, Grid Backup 01 SBU

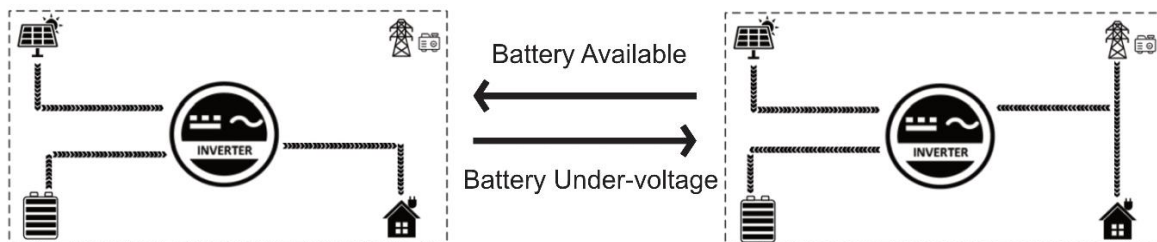
PV power is prioritized for supplying the load.

If PV power is insufficient or unavailable, the battery supplements power to the load. When the battery voltage reaches the value set in Parameter [04] (Battery-to-Grid Voltage Threshold), the system switches to utility power for the load (when no BMS is connected).

When a BMS is connected and the Li-ion battery SOC reaches the value set in Parameter [61] (Switching-to-Grid SOC), the system switches to utility power for the load.

This mode maximizes the use of DC energy and is suitable for areas with a stable utility grid.

Priority Order: PV > Battery > Utility



5.4 Battery Charging Mode

The battery charging mode corresponds to Parameter [06], allowing the user to manually select the desired charging mode.

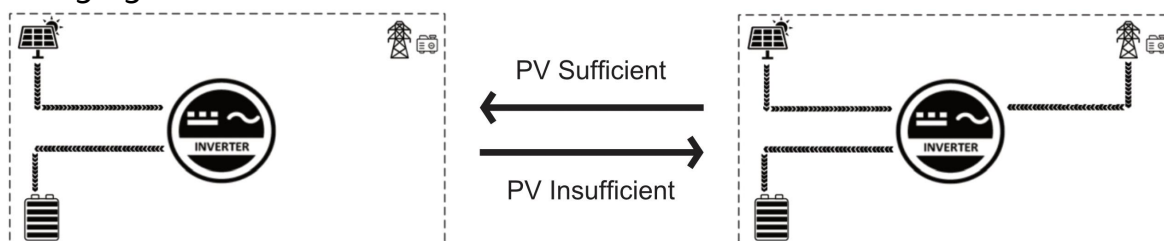
● Hybrid Charging SNU (default)

The battery is charged using both PV and utility power simultaneously, with PV power taking priority.

Utility power serves as a supplemental charging source when PV power is insufficient. This method provides the fastest charging rate and is suitable for areas with limited PV generation or unstable utility supply. Ensures adequate backup power for critical loads.

Charging Priority: PV > Utility

Compliance Note: This charging strategy complies with UL standards for PV energy systems and inverter/battery integration, ensuring safe operation under hybrid PV and utility charging conditions.



● Only PV Charging OSO

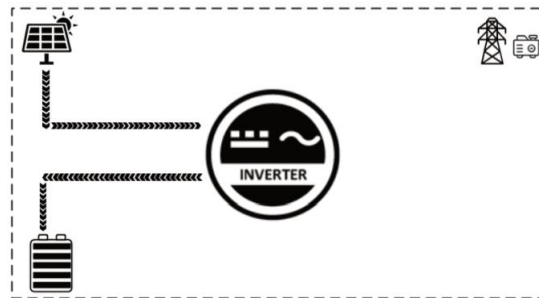
The battery is charged exclusively by PV power, without using utility power.

This method maximizes energy efficiency, as all battery energy is sourced from PV generation.

It is ideal for regions with high solar irradiance or consistent PV availability.

Charging Priority: PV only

Compliance Note: This mode operates in accordance with UL standards for PV energy systems, ensuring safe and reliable PV-only charging.



5.5 Secondary Load Work Mode

● Function Description and Port Configuration

The “Generator Operating Mode” parameter configures the function of the generator port. The default setting is Generator Input, and it can also be set to Secondary Load Output.

When set to Secondary Load Output, ensure that the load is connected to the generator port, and refer to the wiring diagram for proper connection.

Corresponding configuration of Parameter [81] is required based on the port function:

Generator port as input: set to GEN IN

Generator port as output for secondary load: set to AC OUT

● Enabling Secondary Load

When Parameter [81] = AC OUT, the secondary load is enabled.

In this mode, the inverter can simultaneously supply both the primary load and the secondary load.

● Operation of the Secondary Load

In Inverter Mode:

If the load exceeds the rated capacity and the set delay time is reached, the secondary load will be disconnected while the primary load remains powered. Once the user reduces the load, the secondary load will be automatically restored after a 3-minute delay.

In Grid Mode:

If the load exceeds the rated capacity and the set delay time is reached, the secondary load will be disconnected, while the primary load remains powered. After the load is reduced, the secondary load is automatically restored after a 3-minute delay.

In Off-Grid Mode (Non-BMS):

When the battery voltage drops below the threshold set in Parameter [04], the secondary load is disconnected while the primary load remains powered.

The secondary load is restored when the battery is fully charged or the battery voltage reaches the threshold set in Parameter [05].

In Off-Grid Mode (BMS Connected):

If the battery SOC falls below the threshold set in Parameter [61], the secondary load is disconnected, while the primary load remains powered.

The secondary load is restored when the battery is fully charged or the SOC reaches the thresholds set in Parameter [60] or [62].

Operating Mode	Trigger Condition	Load Operation	Recovery Condition
Inverter Mode	When the load exceeds the rated capacity and the configured delay time elapses	The secondary load is disconnected while the primary load remains powered	Once the load is reduced, the secondary load is automatically restored after a 3-minute delay.
Grid Mode	When the load exceeds the rated capacity and the configured delay time elapses	The secondary load is disconnected while the primary load remains powered	Once the load is reduced, the secondary load is automatically restored after a 3-minute delay.
Off - Grid Mode (Non - BMS)	When the battery voltage falls below the threshold set in Parameter [04]	The secondary load is disconnected while the primary load remains powered	When the battery is fully charged, or the battery voltage reaches the threshold set in Parameter [05].
Off - Grid Mode (BMS)	When the battery State of Charge (SOC) falls below the threshold set in Parameter [61]	The secondary load is disconnected while the primary load remains powered	When the battery is fully charged, or the battery State of Charge (SOC) reaches the thresholds set in Parameter [60] or [62].

5.6 Scheduled Charging/Discharging Function

This product features a scheduled charging/discharging function, allowing users to set charging and discharging times according to local peak and valley electricity rates. By setting different time slots, users can make efficient use of both utility power and PV power, optimizing energy consumption according to electricity prices.

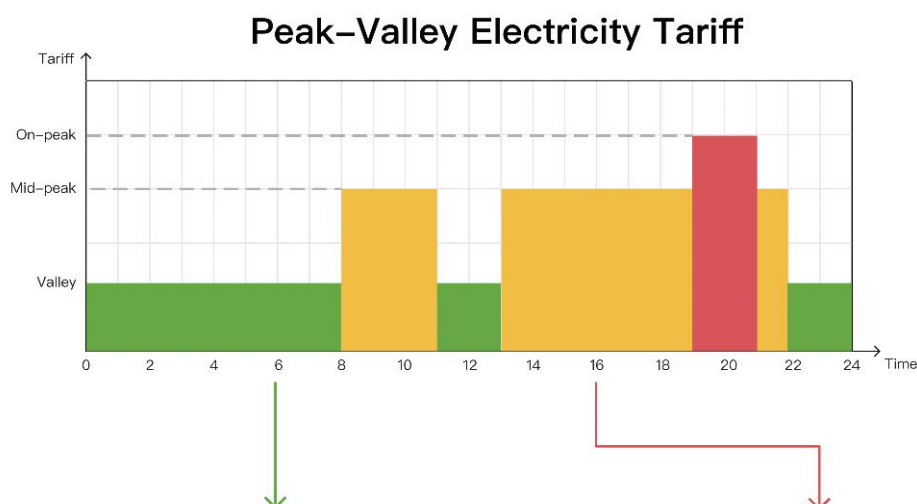
During periods of high electricity prices, the battery can supply power to the loads to reduce costs. Conversely, during periods of low electricity prices, utility power can supply the loads and simultaneously charge the battery. This function helps users minimize electricity expenses while maintaining reliable power supply.

Users can enable or disable the scheduled charging/discharging function in the setting menu via Parameters [46] and [53]. The charging and discharging time slots can be configured using Parameters [40–45] for timed utility charging and Parameters [47–52]

for timed battery discharging. A case example is provided to illustrate how to properly set and use this function.

NOTICE

Before using this function for the first time, set the local time using Parameter [54] and [55]. After the local time is configured, users can schedule the charging and discharging time slots according to the local peak and valley electricity tariffs.



Scheduled Utility Charging & Loading Function



With three configurable periods, the user can freely set the mains charging and power-supplying schedule between 00:00 and 23:59. During the set periods, PV power will be used first if available. If PV power is unavailable or insufficient, utility power will automatically supplement the supply.

Scheduled Battery Discharging Function



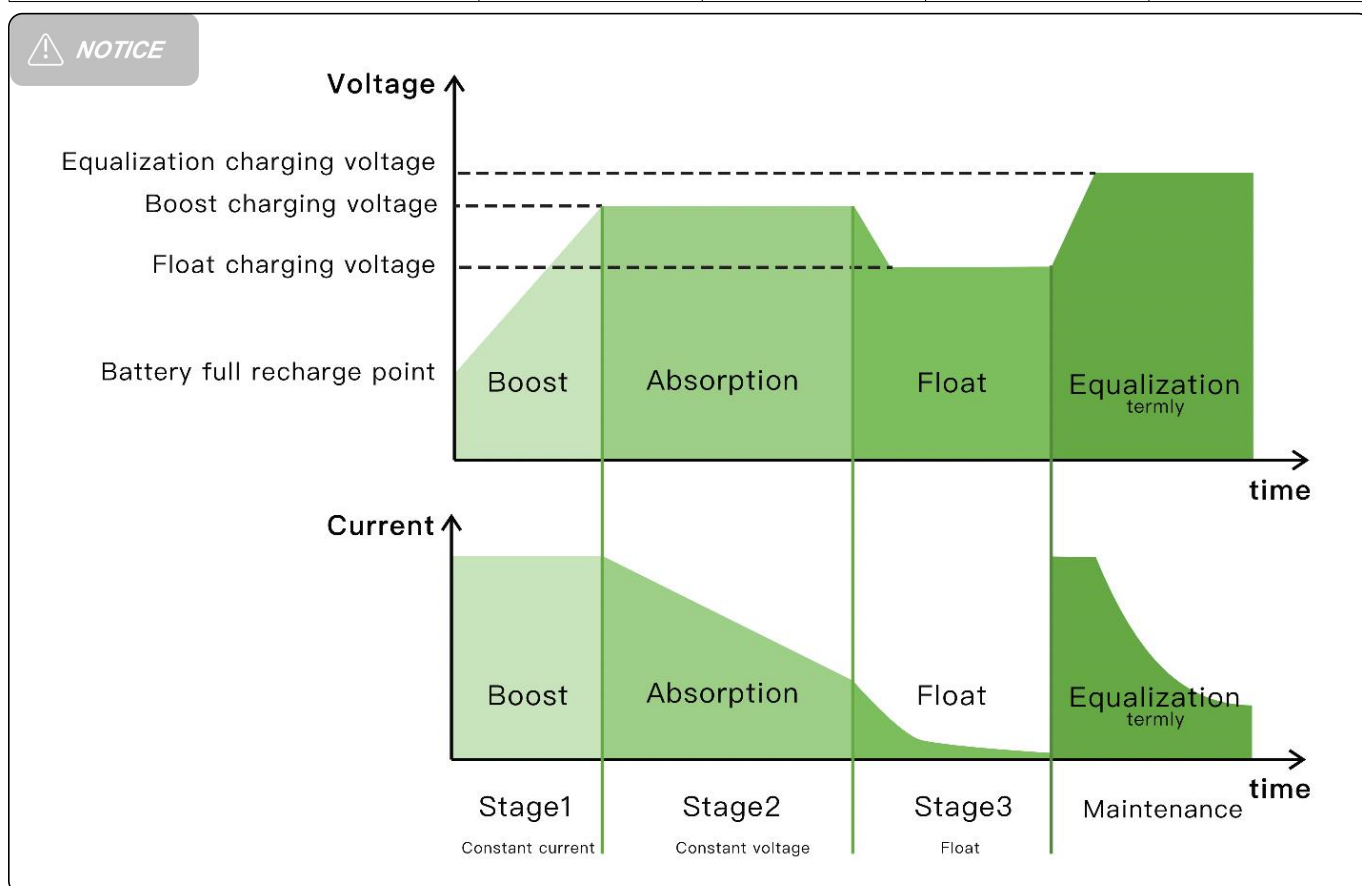
With three configurable time periods, users can freely set the battery discharge schedule between 00:00 and 23:59. During the set periods, the inverter prioritizes supplying the load from the battery. If the battery capacity is insufficient, the inverter will automatically switch to utility power to ensure stable operation.

5.7 Battery Parameters

● Lead-acid battery

Battery type Parameters	Sealed lead acid battery (SLD)	Gel lead acid battery (GEL)	Flooded lead acid battery (FLD)	User-defined (USE)
Overvoltage Disconnect Voltage	60V	60V	60V	60V
Equalization Charging Voltage	58V	56.8V	58V	40 ~ 60V settable
Boost Charging Voltage	57.6V	56.8V	57.6V	40 ~ 60V settable

Float Charging Voltage	55.2V	55.2V	55.2V	40 ~ 60V settable
Undervoltage Alarm Voltage	44V	44V	44V	40 ~ 60V settable
Undervoltage Disconnect Voltage	42V	42V	42V	40 ~ 60V settable
Discharge Limit Voltage	40V	40V	40V	40 ~ 60V settable
Over-discharge Delay Time	5s	5s	5s	1 ~ 30s settable
Equalization Charging Duration	120 min	-	120 min	0 ~ 600 min settable
Equalization Charging Cycle	30d	-	30d	0 ~ 250d settable
Bulk Charging Cycle	120m	120m	120m	10 ~ 900m settable



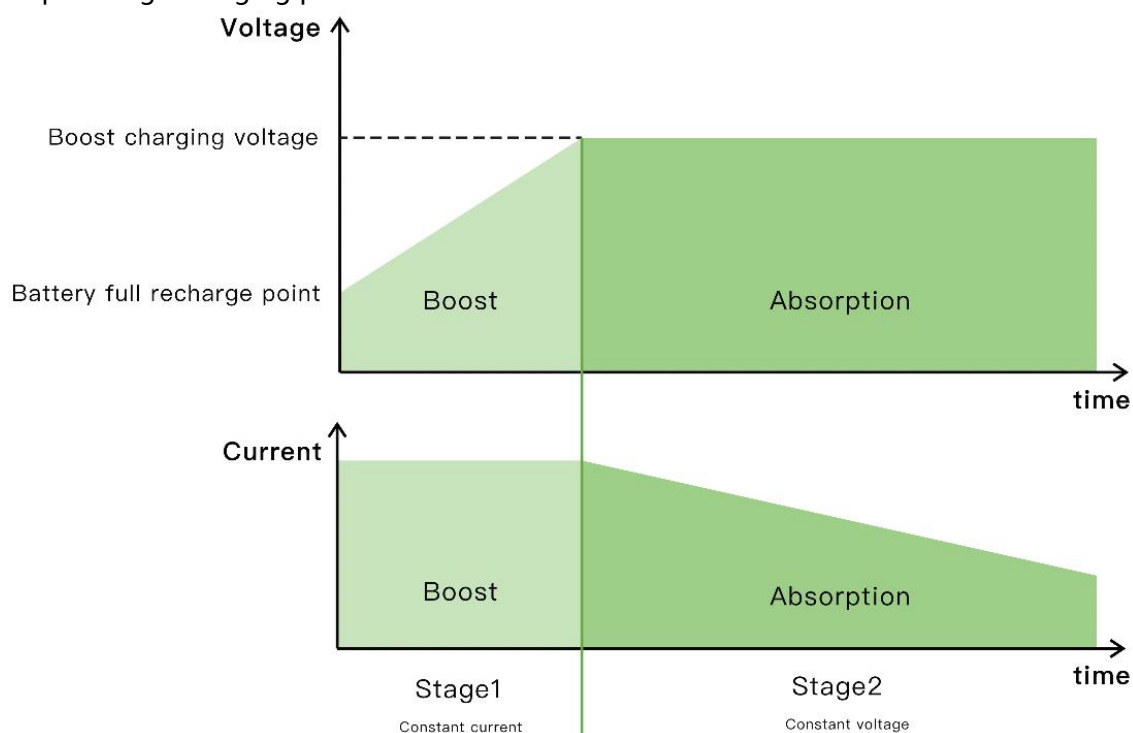
● Lithium-ion Battery

Battery type Parameters	Ternary (N13)	Ternary (N14)	LFP (L16)	LFP (L15)	LFP (L14)	Adjustable
Overvoltage Disconnect Voltage	60V	60V	60V	60V	60V	60V
Equalization Charging Voltage	-	-	-	-	-	40 ~ 60V settable
Boost Charging Voltage	53.2V	57.6V	56.8V	53.2V	49.2V	40 ~ 60V settable
Float Charging Voltage	53.2V	57.6V	56.8V	53.2V	49.2V	40 ~ 60V settable

Undervoltage Alarm Voltage	43.6V	46.8V	49.6V	46.4V	43.2V	40 ~ 60V settable
Undervoltage Disconnect Voltage	38.8V	42V	48.8V	45.6V	42V	40 ~ 60V settable
Discharge Limit Voltage	36.4V	39.2V	46.4V	43.6V	40.8V	40 ~ 60V settable
Over-discharge Delay Time	30s	30s	30s	30s	30s	1 ~ 30s settable
Equalization Charging Duration	-	-	-	-	-	0 ~ 600 min settable
Equalization Charging Cycle	-	-	-	-	-	0 ~ 250d settable
Boost Charging Cycle	120 min settable	120 min settable	120 min settable	120 min settable	120 min settable	10 ~ 900 min settable

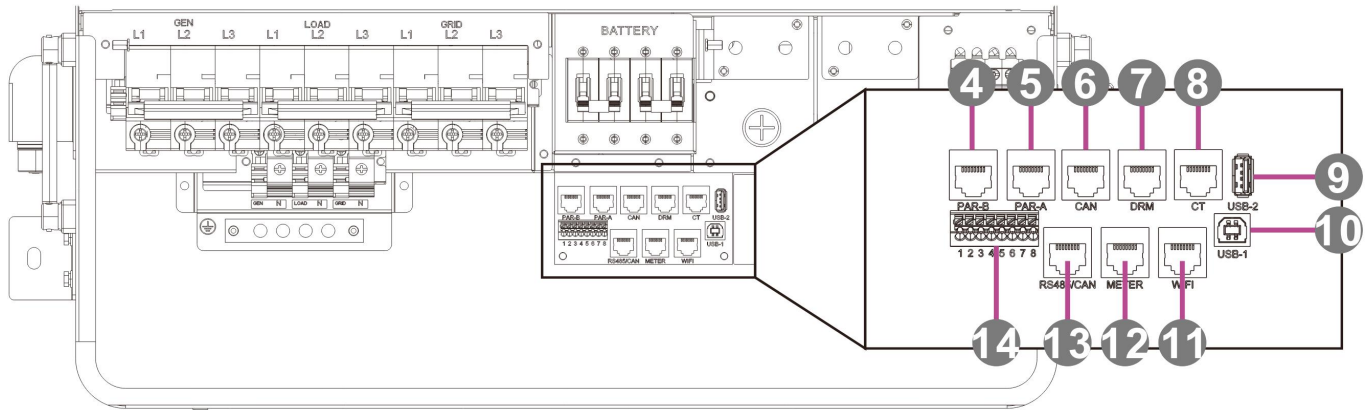
NOTICE

If no BMS is connected, the inverter will charge according to the battery voltage with a preset charging curve. When the inverter communicates with the BMS, it will follow the BMS instructions to perform a more complex stage charging process.



6.Communication

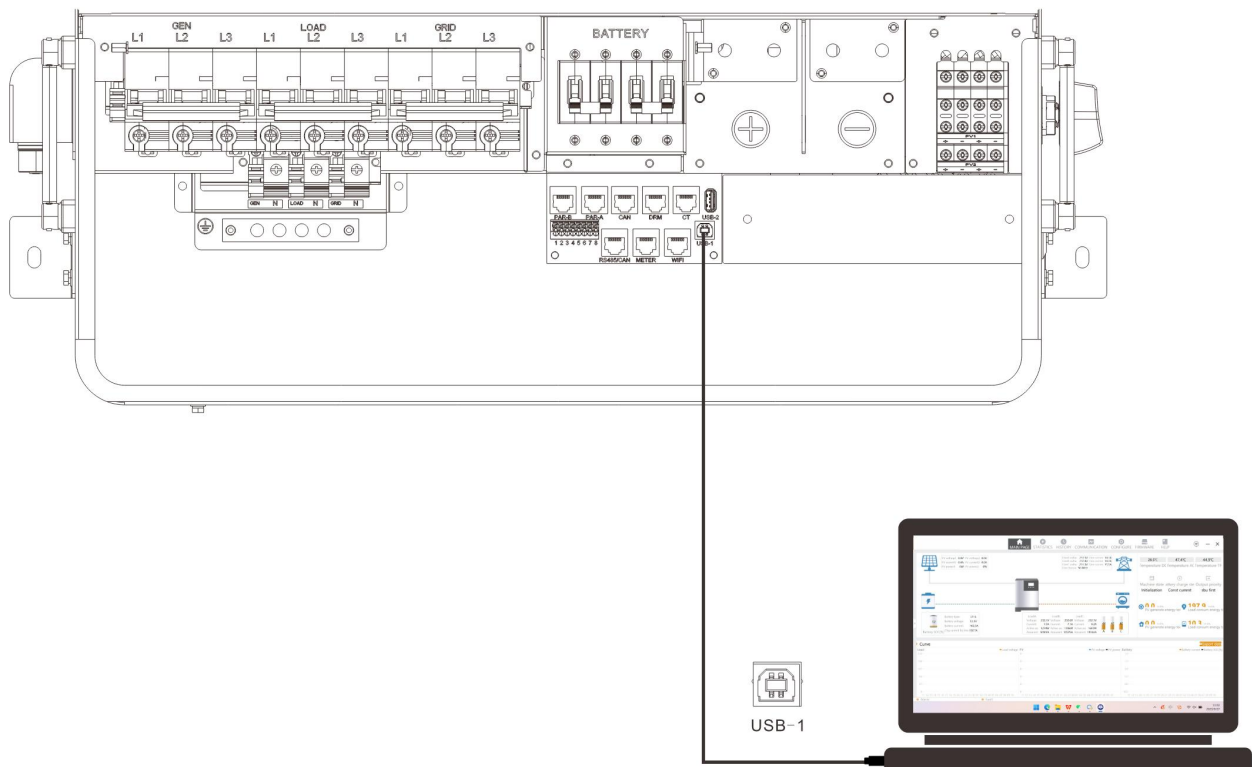
6.1 Product Overview



4	Parallel Port (PAR-B)	5	Parallel Port (PAR-A)	6	CAN Port
7	DRM Port	8	CT Port	9	USB-2 Port
10	USB-1 Port	11	WiFi Port	12	Meter Port
13	RS485/CAN Port	14	Dry Contact Prot		

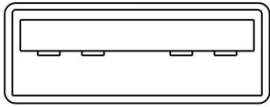
6.2 USB-1 Communication Function

Users can read and modify device parameters via this port using the host computer software. The installation package can be obtained by contacting us.



6.3 USB-2 Display Port

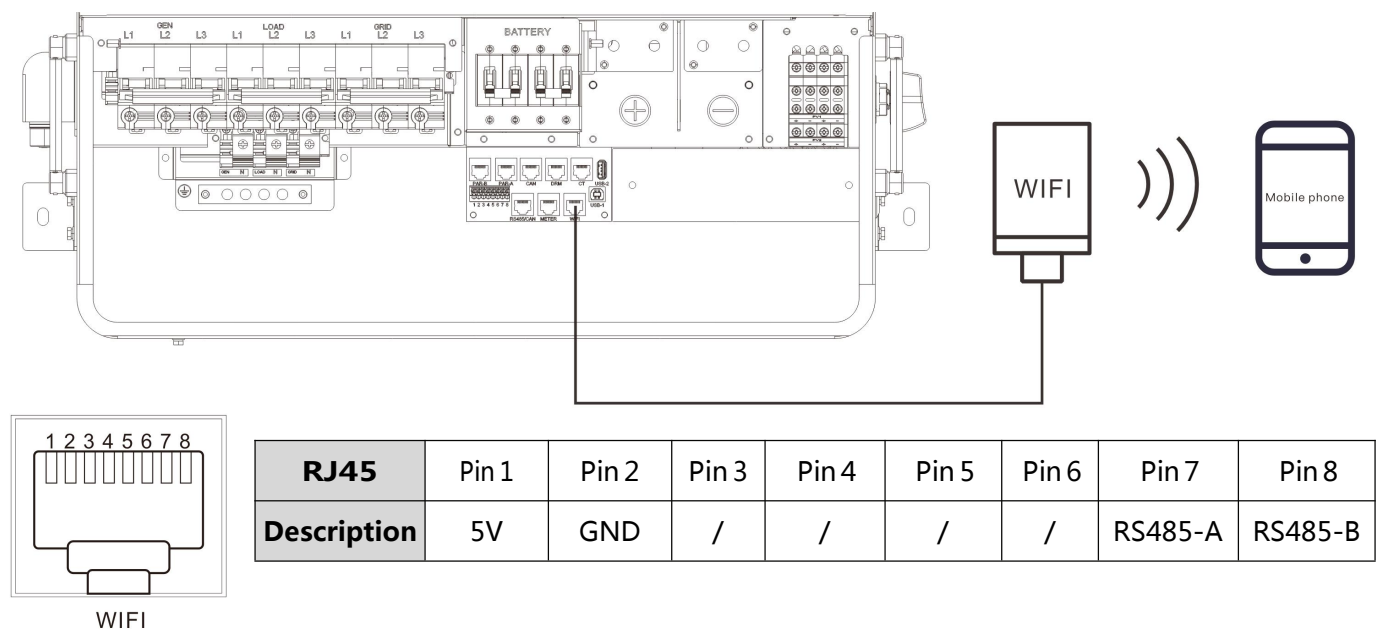
This port is used for firmware updates, which are only needed under specific circumstances.



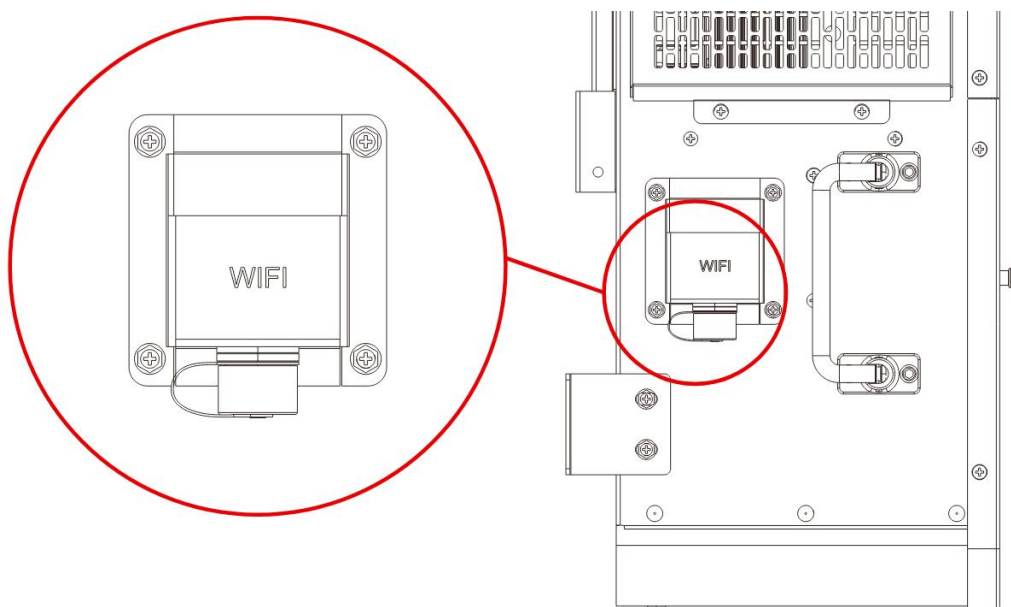
6.4 WiFi Communication Function

The Wi-Fi port connects to the Wi-Fi or 4G Stick Logger module, allowing users to monitor the inverter's status and parameters via the mobile app.

● WiFi Port 1 (Either Option)

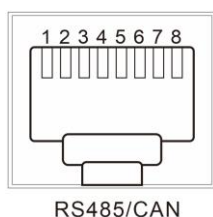


● WiFi Port 2 (Either Option)



6.5 RS485/CAN Communication Function

The RS485/CAN communication port connects to the Li-ion battery BMS.



RJ45	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
Description	RS485-B	RS485-A	/	CANH	CANL	/	RS485-A	RS485-B

Communication Setup Procedure :

Step 1 : Battery DIP Switch and Protocol

Configure the battery DIP switches and select the appropriate communication protocol before system startup.

Step 2 : Communication Wiring

Connect the battery to the inverter with a standard CAT5 cable.

Step 3 : Parameter [08] Configuration

Set inverter Parameter [08] to **L14**, **L15**, or **L16**, corresponding to the number of battery cells connected in series.

Step 4 : Parameters [32-33] Configuration

Set inverter Parameter[32] to **RS485** or **CAN** based on the communication interface, and set Parameter [33] to the protocol required by the connected battery.

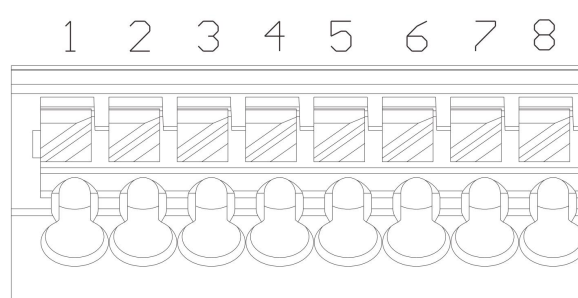
If Fault Code 58 is displayed, communication is not established or cannot be verified.

Check the wiring and configuration settings. Please contact us if the condition remains.

6.6 Dry Contact Function

The dry contact port has 5 functions:

1. RSD power supply
2. Remote switch on/off (reserved)
3. Switching signal output (reserved)
4. Battery temperature sampling (reserved)
5. Generator remote start/stop



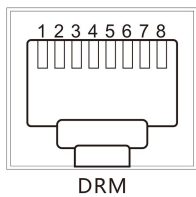
Function	Description
RSD power supply	PIN 1 is GND , PIN 2 is RSD 12V+
Remote switch on/off (reserved)	When pin 1 is connected to pin 3, the inverter will shut off AC output. When pin 1 is disconnected from pin 3, the inverter will resume normal output.
Switching signal output (reserved)	When the battery voltage reaches the battery discharge limit voltage (parameter [15]), the voltage between pin 4 and pin 1 is 0V. When the battery is charging normally, the voltage between pin 4 and pin 1 is 5V.
Temperature sampling (reserved)	Pin 1 & Pin 5 can be used for battery temperature sampling compensation.

Generator remote switch	When the battery voltage reaches the battery under-voltage alarm point (Parameter [14]) or the voltage point for switching to mains power (Parameter [04]), pins 7 to 6 are normally open, and pins 8 to 6 are normally closed. When the battery voltage reaches the voltage point for switching to utility power (parameter [05]) or the battery is fully charged, pins 7 to 6 are normally closed, and pins 8 to 6 are normally open.
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NOTICE

To use the generator remote start/stop function via dry contact, the generator must be equipped with an Automatic Transfer Switch (ATS) and support remote start and stop control.

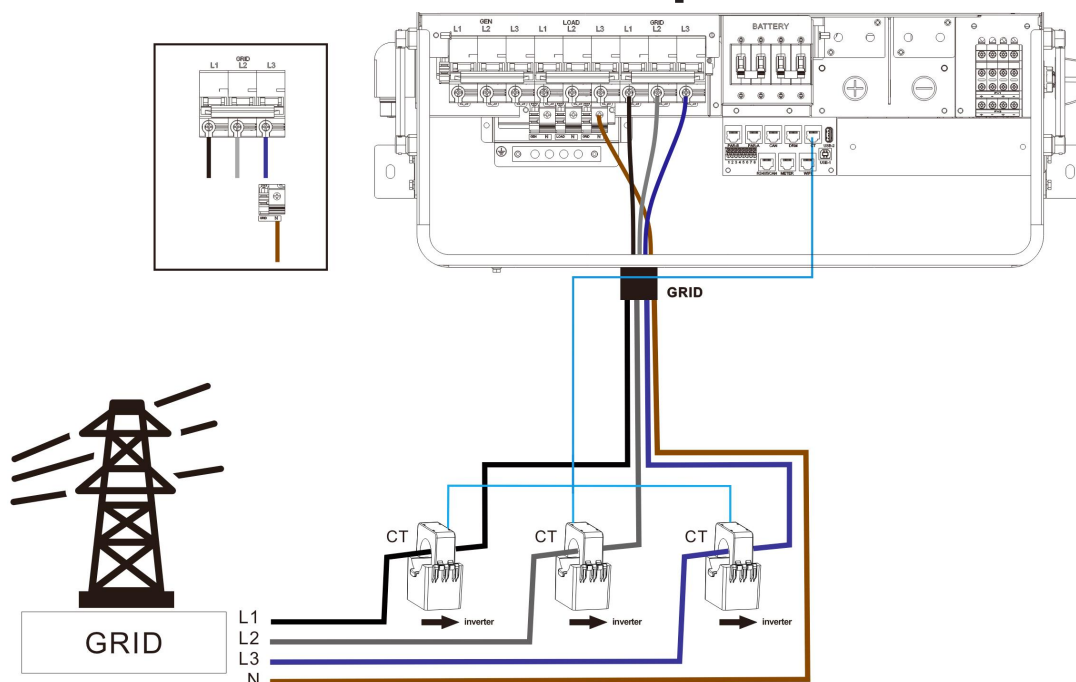
6.7 DRM (Feature reserved for specific markets)

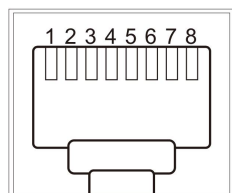


RJ45	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
Description	DRM5	DRM6	DRM7	DRM8	RefGen	COM/ DRM0	V+	V-

MODEL	RJ45 socket asserted by shorting pins		Requirement
DRM0	5	6	Operate the power-off device.
DRM5	1	5	Do not generate power to the grid.
DRM6	2	5	The power generation shall not exceed 50% of the rated power.
DRM7	3	5	The power generation shall not exceed 75% of the rated power, and reactive power shall be absorbed when possible.
DRM8	4	5	Increase power generation (limited by other active DRM).

6.8 External CT Connection (Optional)

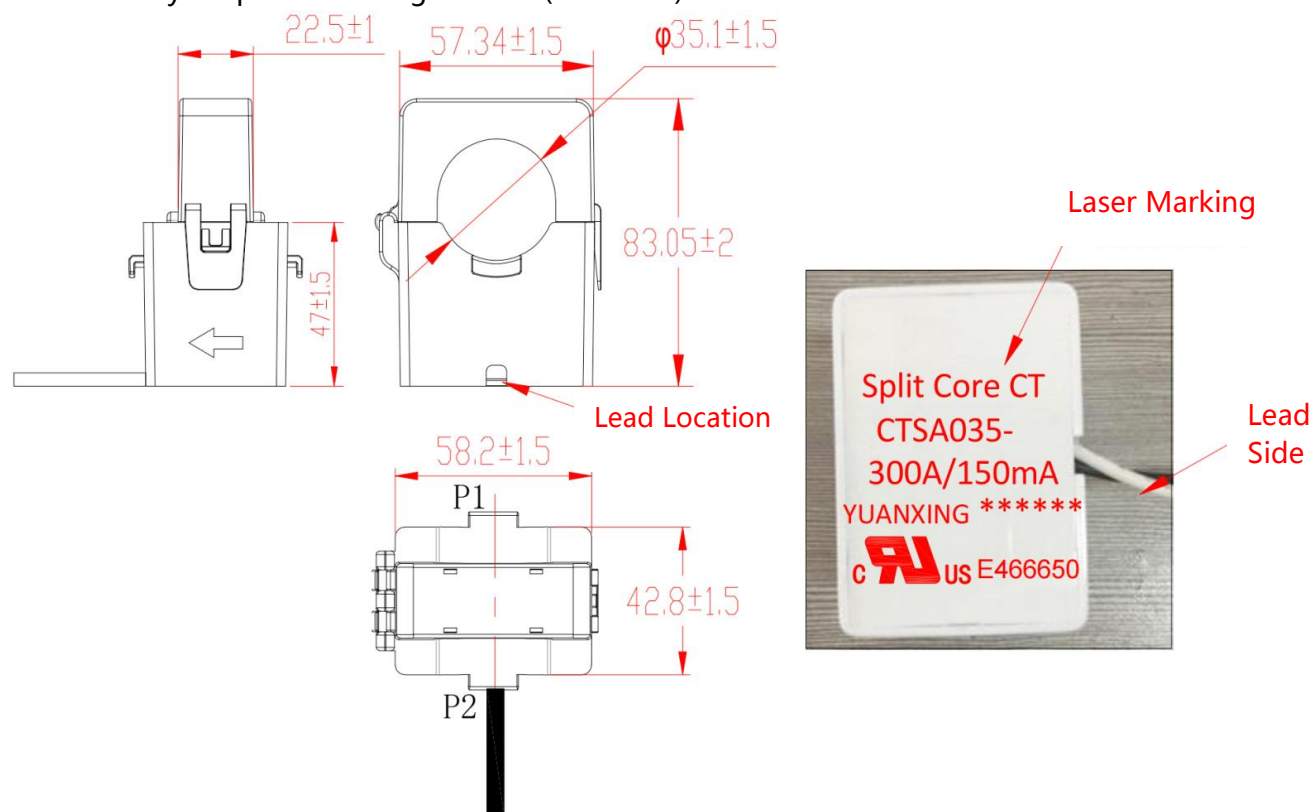




RJ45	Pin 1	Pin 2	Pin 3	Pin 4	Pin 5	Pin 6	Pin 7	Pin 8
Description	CT1+	CT1-	/	CT2+	CT2-	/	CT3+	CT3-

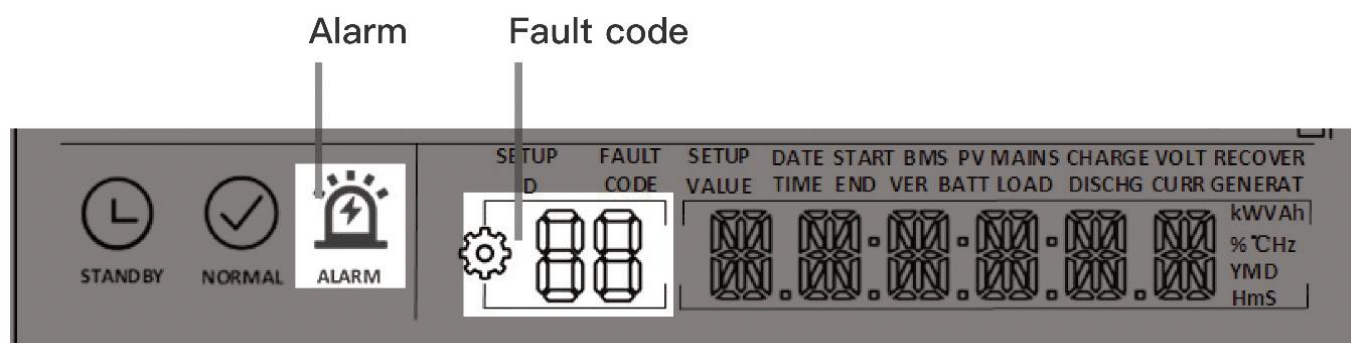
CT

1. Split Core Current Transformer (CT) dimension: (mm)
2. Secondary output cable length is 4m (157.48 in).



7. Fault Codes and Countermeasures

7.1 Fault Codes



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】	BatOpen	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】	PvAFCIErr	No	PV arc fault.
【11】	PvOCHw	No	Boost overcurrent (hardware protection).
【12】	SpiCommErr	Yes	SPI communication fault of master and slave chips.
【13】	OverloadBypass	Yes	Bypass overload protection.
【14】	OverloadInverter	Yes	Inverter overload protection.
【15】	AcOverCurrHw	Yes	Inverter overcurrent (hardware protection).
【16】	AuxDspReqOffPWM	Yes	Slave chip OFF request fault.
【17】	InvShort	Yes	Inverter short-circuit protection.
【18】	Bussoftfailed	Yes	Bus soft-start failure.
【19】	OverTemperMppt	No	PV radiator over-temperature protection.
【20】	OverTemperInv	Yes	Inverter heat dissipation over-temperature protection
【21】	FanFail	Yes	Fan blockage or failure fault.
【22】	EEPROM	Yes	Memory failure.
【23】	ModelNumErr	Yes	Model setting error.
【24】	Busdiff	Yes	Positive and negative bus voltage imbalance.
【25】	BusShort	Yes	Bus short-circuit.
【26】	RlyShort	Yes	Inverted AC Output Backfills to Bypass AC Input.
【27】	LinePhaselose	Yes	Grid input phase lose.
【28】	LinePhaseErr	Yes	Grid input phase error
【29】	BusVoltLow	Yes	Bus voltage undervoltage protection.
【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).
【33】	ControlCanFault	Yes	Control CAN fault in parallel operation.
【34】	CanCommFault	Yes	CAN communication fault in parallel operation.
【35】	ParaAddrErr	Yes	Parallel ID (communication address) setting error.
【36】	Balance currentOC	Yes	Balance bridge arm overcurrent failure.
【37】	ParaShareCurrErr	Yes	Parallel current sharing fault .

【38】	ParaBattVoltDiff	Yes	Parallel mode, inconsistent utility input source.
【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 component of voltage abnormality.
【42】	SysFwVersionDiff	Yes	Inconsistent parallel operation program versions.
【43】	ParaLineContErr	Yes	Parallel wiring fault.
【44】	Serial number error	Yes	Serial number not set at factory.
【45】	Error setting of split-phase mode	Yes	[31] Incorrect settings for parallel operation mode.
【46】	MeterComErr	Yes	Meter communication error.
【48】	AFCIComErr	Yes	AFCI communication error.
【56】	Low insulation resistance fault	No	PV1+, PV2+ and PV- abnormally low impedance to ground.
【57】	Leakage current overload fault	Yes	System leakage current exceeds limit.
【58】	BMS communication error	No	BMS communication fault.
【60】	BMS battery low temperature alarm	No	BMS low-temperature alarm (takes effect after successful BMS communication).
【61】	BMS battery over temperature alarm	No	BMS over-temperature alarm (takes effect after successful BMS communication).
【62】	BMS battery over current alarm	No	BMS over-current alarm (takes effect after successful BMS communication).
【63】	BMS battery undervoltage alarm	No	BMS under-voltage alarm (takes effect after successful BMS communication).

7.2 Troubleshooting

Fault Code	Meaning	Causes	Remedy
/	No screen display	No power input, or the switch on the bottom of the unit is not switched on.	Check whether the battery air circuit breaker or PV air circuit breaker is closed. Check if the switch is in the "ON" position. Press any button on the screen to exit the screen sleep mode.
01	Battery under-voltage	The battery voltage is lower than the value set in parameter [14].	Charge the battery until the battery voltage exceeds the set value in parameter [14].
03	Battery not connected	The battery is not connected, or the BMS is in discharge protection state.	Check whether the battery is reliably connected. Check if the battery circuit breaker is closed. Ensure that the BMS can communicate normally.

04	Battery over-discharge	The battery voltage is lower than the value set in parameter [12].	Manual reset: Turn off and restart the device. Automatic reset: Charge the battery to make the battery voltage higher than the value set in parameter [35].
06	Battery over-voltage when charging	Battery is in over-voltage condition.	Manually turn off the power and restart. Check if the battery voltage exceeds the limit value. If it does, the battery needs to be discharged until the voltage is lower than the battery overvoltage recovery point.
13	Bypass over-load (software detection)	Bypass output power or output current over-load for a period of time.	Reduce the load power and restart the device. For more information, refer to Protection Function 11.
14	Inverter over-load (software detection)	Inverter output power or output current over-load for a period of time.	
19	Heat sink of PV input over-temperature (software detection)	Heat sink of PV input temperature exceeds 90°C for 3s.	Normal charging and discharging will resume when the temperature of the radiator cools down below the over-temperature recovery temperature.
20	Heat sink of inverter output over-temperature (software detection)	Heat sink of inverter output temperature exceeds 90°C for 3s.	
21	Fan failure	Hardware detects fan failure.	After turning off the machine's power, manually switch the fan and check for any foreign objects blocking it.
26	AC input relay short-circuit	The relay is used to control the AC input.	Manually shut down and restart the machine. If the fault reappears after restarting, contact us to repair the machine.
28	Utility input phase fault	AC input phase does not match AC output phase.	Ensure that the AC input phase is the same as the AC output phase.

8. Protection and Maintenance

8.1 Protection Functions

No.	Protection Functions	Definition
1	PV input current / power limiting protection	When the configured PV array charging current or power exceeds the rated PV input value, the inverter will limit the input power and charge at the rated value.
2	PV overvoltage protection	If the PV voltage exceeds the maximum value allowed by the hardware, the device will report a fault and stop PV boosting to output a sinusoidal AC waveform.

3	Night anti-reverse charging protection	At night, the battery will be prevented from discharging to the PV module because the battery voltage is greater than the PV module voltage.
4	Mains input overvoltage protection	When the grid voltage of per phase exceeds 140Vac, the mains charging will be stopped and will switch to inverter output.
5	Mains input undervoltage protection	When the mains voltage of per phase falls below 90Vac, the mains charging will be stopped and will switch to inverter output.
6	Battery overvoltage protection	When the battery voltage reaches the over-voltage disconnection voltage point, it will automatically stop the PV and grid charging of the battery to prevent over-charging and damage to the battery.
7	Battery undervoltage protection	When the battery voltage reaches the low-voltage disconnection voltage point, it will automatically stop discharging the battery to prevent the battery from being over-discharged and damaged.
8	Battery overcurrent protection	When the battery current exceeds the range allowed by hardware, the machine will turn off output and stop discharging the battery.
9	AC output short-circuit protection	In the event of a load short-circuit, the AC output voltage will be immediately shut down. To restore normal output, the short-circuit fault must first be cleared, and the inverter must then be manually restarted.
10	Radiator over-temperature protection	When the internal temperature of the inverter is too high, the inverter will stop charging and discharging; when the temperature returns to normal, the inverter will resume charging and discharging.
11	Inverter overload protection	After triggering the overload protection, the inverter will resume output after 3 minutes, 5 consecutive overloads will switch off the output until the inverter restarts. (102%<load<110%) : error, output switched off after 5 minutes. (110%<load<125%) : error reported and output switched off after 10s. (>125% load): error reported and output switched off after 10s.
12	AC backfeed protection	Prevents backfeeding of battery inverter AC to bypass AC inputs.
13	Bypass overcurrent protection	Built-in AC input overcurrent protection circuit breaker.
14	Bypass wiring error protection	If the phase of the two bypass inputs differs from the inverter's split-phase output, the inverter will block connection to the bypass. This prevents load interruption or short-circuiting when switching to the bypass.

8.2 Maintenance

To ensure optimal long-term performance, it is recommended to perform the following inspections twice per year for inverter systems.

- Ensure that airflow around the inverter is not obstructed, and remove any dirt, dust, or debris from the radiator to maintain proper cooling.
- Inspect all exposed conductors for damage caused by sunlight, friction with surrounding objects, dry rot, or insect and rodent activity. Repair or replace any damaged conductors as necessary.
- Verify that all indicators and displays correspond to the actual operation of the equipment. Note any faults or incorrect readings and take corrective action if required.
- Check all terminals for signs of corrosion, insulation damage, overheating, or discoloration. Tighten terminal screws as needed to ensure reliable electrical connections.
- Inspect for dirt, insect nests, and corrosion, and clean as required. Regularly clean insect screens to maintain proper ventilation and prevent ingress.
- Inspect the lightning arrester and replace it promptly if it has failed, to prevent lightning damage to the inverter or other connected equipment.

DANGER

Before performing any inspections or operations, ensure that the inverter is disconnected from all power sources and that the capacitors are fully discharged to prevent the risk of electric shock.

Disclaimer / Limitation of Liability

The Company shall not be liable for any damage resulting from:

- Improper use of the inverter or operation in an inappropriate location.
- PV modules with an open-circuit voltage exceeding the maximum allowable voltage.
- Operation at temperatures outside the specified operating range.
- Dismantling, modification, or repair of the inverter by unauthorized personnel.
- Force majeure events, including damage during transport or handling of the inverter.

9.Datasheet

MODEL	PowerCore 18K-48	Setting
INVERTER OUTPUT		
Rated Output Power	18000W	
Max. Peak Power	2 times rated power, 10s	
Max. AC Output Power	19800VA	
Rated AC Output Current	50.0Aac	
Rated Output Frequency	50/60Hz	√
Rated Output Voltage	120/208Vac (L1+L2+L3+N+PE)	
Output Voltage Range	120/208Vac ± 5%	
BATTERY INPUT		
Battery Types	Li-ion / Lead-Acid / User Defined	√
Rated Battery Voltage	48Vdc	
Battery Voltage Range	40-60Vdc	
Max. PV Charging Current	360Adc	√
Max. Grid/Generator Charging Current	360Adc	√
Max. Charging/Discharging Current	360Adc	√
Charging Curve	3 Stages / Equalization	
Charging Strategy for Li-Ion Battery	Self-adaption to BMS	
PV INPUT		
No. of MPPT Trackers	2	
Max. PV Input Power	14.4kW + 14.4kW	
Input Current	36Adc+36Adc	
Min. PV Input Voltage / Start-up Voltage	100Vdc	
Max. PV Input Voltage	600Vdc	
MPPT Operating Voltage Range	120-550Vdc	
GRID / GENERATOR INPUT		
Rated Input Frequency	50/60Hz	
Rated Input Voltage	120/208Vac (L1+L2+L3+N+PE)	
AC Voltage Range	Phase Voltage 90~140Vac; Line Voltage 156~242Vac	
Bypass Overload Current	100A	
EFFICIENCY		
MPPT Tracking Efficiency	>99%	
Max. Efficiency	97.6%	

GENERAL DATA		
Parallel Capacity	1~6 units	
Dimensions (W × H × D)	23.36" × 33.40" × 8.47"	
Weight	118 lbs	
Protection Degree	IP20, indoor use only	
Operating Temperature	14 ~ 131 °F, >113 °F Derated	
Noice	<60dB	
Cooling Method	Intelligent Air Cooling	
COMMUNICATION		
Internal Interface	RS485 / CAN / WiFi	√
External Module (optional)	WiFi / 4G Stick	√
PROTECTION		
Has PV Current Limiting Protection, PV Overvoltage Protection, Night Anti - backcharging Protection, Mains Input Overvoltage Protection, Mains Input Undervoltage Protection, Battery Overvoltage Protection, Battery Undervoltage Protection, Battery Overcurrent Protection, AC Output Short - circuit Protection, Heat Sink Overtemperature Protection, Overload Protection, AC Backfeed Protection, Bypass Overcurrent Protection, Bypass Wiring Error Protection, Arc Fault Protection, Leakage Current Protection, Rapid Shutdown Signal Generator (Optional), AFCI/GFCI/RSD (Optional)		
CERTIFICATION		
Safety	IEC62109-1, IEC62109-2	
EMC	EN61000-6-1, EN61000-6-3, FCC 15 class B	
RoHS	Yes	



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