USER MANUAL

ELD Series

On-Grid Hybrid Inverter

ELD6K, ELD8K, ELD10K, ELD12K, ELD15K
(Grid Support Utility-interactive Inverter)

EN

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Preface

Copyrights

Disclaimers

Before using the product, please read this manual carefully to ensure you fully understand the product and can use it correctly. Please keep this manual properly for future reference after reading. Improper use of this product may cause serious injury to you or others, or result in product damage and property loss. By using this product, you are deemed to have understood, acknowledged, and accepted all terms and contents in this manual. BEIJING EPSOLAR TECHNOLOGY CO., LTD. shall not be liable for any losses caused by the user's failure to use the product in accordance with this manual.

The warranty does not apply to the following conditions:

- Damage caused by improper use or inappropriate environments (It is strictly forbidden to install the inverter in the flammable, explosive, dust accumulative or other harsh environments).
- The actual current/voltage/power exceeds the limit value of the inverter.
- Damage caused by working temperature exceeding the rated temperature range.
- Electric arc, fire, explosion and other accidents caused by failure to follow the inverter labels or manual instructions.
- Unauthorized disassembly and maintenance of the inverter.
- Damage caused by force majeure such as lightning strikes, rainstorms, mountain torrents and grid failures, etc.
- Damage occurred during transportation or loading/unloading the inverter.

Scope of application

This user manual describes the installation, electrical connection, commissioning, maintenance and troubleshooting of the ELD series on-grid hybrid inverter (hereinafter referred to as "inverter"). The ELD series includes the following product models:

ELD6K, ELD8K, ELD10K, ELD12K, ELD15K

This manual is only intended for professionals who are familiar with local regulations, standards and electrical systems, have received professional training, and know the product well.

Symbol definition

To ensure the user's personal and property safety during operation, as well as the efficient use of this product, relevant safety instructions are provided in the manual and highlighted with the corresponding symbols. To prevent personal injury and property damage, please fully understand and strictly follow these highlighted information. The symbols used in this manual are as follows:

⚠ DANGER

Indicates a high-level hazard that, if not avoided, will result in serious injury or death.

⚠ WARNING

Indicates a medium-level hazard that, if not avoided, could result in death or serious injury.

⚠ CAUTION

Indicates a low-level hazard that, if not avoided, could result in minor or moderate injury.

NOTICE

Indicates an important reminder during the operation which, if ignored, may result in an equipment error alarm.

Tip	Indicates recommendation for reference.
	Read through the user manual before any operations.

Important Safety Instructions

Please keep this manual for future reference.

1. General safety instructions

DANGER

- The high voltage circuits in the inverter can endanger lives!
- Only professional electrical engineers can operate this product, minors and people with disability/mental illness cannot use this product. Do not install the inverter at a place within children's reach.

WARNING

- Ensure that the maximum AC input voltage and maximum photovoltaic (PV) output voltage (namely, the PV open circuit voltage after low temperature correction) does not exceed the maximum input voltage of the inverter. Failure to do so may result in inverter damage or other losses, for which EPEVER reserves the right to exclude warranty and shall not bear any joint liability.
- Due to the high temperature of the case when the inverter is running, be careful of being burned.
- When the inverter is running, only the display and buttons of the inverter can be touched.

NOTICE

The PV frame and bracket should be safely grounded in accordance with the local power department's grounding requirements!

2. Requirements for inverter installation

- Inverter must be installed in full compliance with national and local grid standards and regulations.
- Before proceeding with the installation and commissioning, read and understand all instructions contained in this manual, familiarize yourself with relevant safety symbols.
- In accordance with national and state/provincial regulations, access to the power grid is only permitted after obtaining authorization from the power department, and the operation must be performed by a qualified electrical engineer.
- Before installing and maintaining the inverter, cut off the DC power from the PV array and battery pack by the DC switch, as well as the AC power from the grid and generators by the AC switch. Failure to do so may result in high voltage causing serious injury.

3. Requirements for professional and technical personnel

Installation, operation, maintenance, and replacement of devices or components are permitted only for qualified professionals or trained personnel. Personnel responsible for the installation and maintenance of device must undergo rigorous training, understand various safety precautions, and master correct operating procedures.

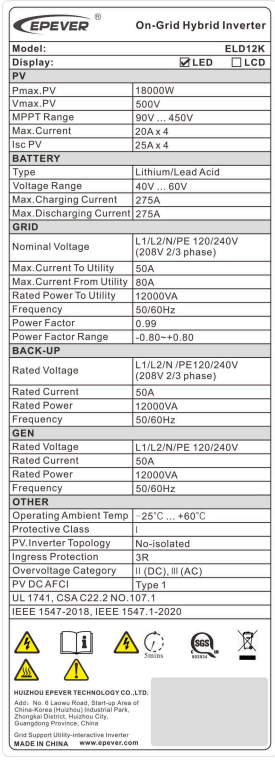
4. Transportation precautions

Upon leaving the factory, the inverter is already in its optimal electrical and mechanical condition. During transporting, it is imperative to use the inverter's original packaging or appropriate packaging to ensure the safety. Damage to the inverter caused during transportation is the responsibility of the shipping company. Upon pickup, please conduct a thorough inspection of the inverter. If any packaging issues are found that may cause damage to the inverter, or if any visible damage is found to the inverter, please immediately notify the responsible shipping company. If necessary, you can seek assistance from your PV system installer or EPEVER.

5. Assembly precautions

Assemble the inverter according to the details in the following sections of this manual. Place the inverter on an object (such as a wall or component bracket) with appropriate load-bearing capacity, ensuring it is placed vertically. Choose a suitable location for the installation of electrical equipment, ensuring sufficient space for fire escape routes to facilitate maintenance in case of failure. Maintain appropriate ventilation conditions to ensure adequate air circulation for cooling, with air humidity less than 95% during assembly.

6. Inverter label



EPEVER ®	On-Grid Hybrid Inverter
Model:	**ELD12K**
Display:	☑ LED ☐ LCD
PV	
Pmax.PV	18000W
Vmax.PV	500V
MPPT Range	90V ... 450V
Max.Current	20A x 4
Isc PV	25A x 4
BATTERY	
Type	Lithium/Lead Acid
Voltage Range	40V ... 60V
Max.Charging Current	275A
Max.Discharging Current	275A
GRID	
Nominal Voltage	L1/L2/N/PE 120/240V (208V 2/3 phase)
Max.Current To Utility	50A
Max.Current From Utility	80A
Rated Power To Utility	12000VA
Frequency	50/60Hz
Power Factor	0.99
Power Factor Range	-0.80~+0.80
BACK-UP	
Rated Voltage	L1/L2/N /PE120/240V (208V 2/3 phase)
Rated Current	50A
Rated Power	12000VA
Frequency	50/60Hz
GEN	
Rated Voltage	L1/L2/N/PE 120/240V
Rated Current	50A
Rated Power	12000VA
Frequency	50/60Hz
OTHER	
Operating Ambient Temp	-25°C ... +60°C
Protective Class	I
PV.Inverter Topology	No-isolated
Ingress Protection	3R
Overvoltage Category	II (DC), III (AC)
PV DC AFCI	Type 1
UL 1741, CSA C22.2 NO.107.1	
IEEE 1547-2018, IEEE 1547.1-2020	

5mins

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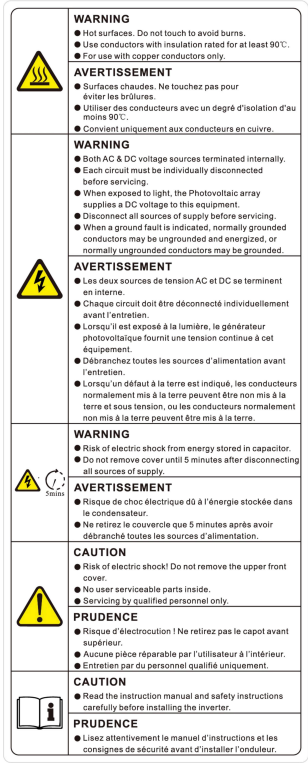
Grid Support Utility-interactive Inverter
MADE IN CHINA www.epever.com



WARNING
- Hot surfaces. Do not touch to avoid burns.
- Use conductors with insulation rated for at least 90℃.
- For use with copper conductors only.

AVERTISSEMENT
- Surfaces chaudes. Ne touchez pas pour éviter les brûlures.
- Utiliser des conducteurs avec un degré d'isolation d'au moins 90℃.
- Convient uniquement aux conducteurs en cuivre.

WARNING
- Both AC & DC voltage sources terminated internally.
- Each circuit must be individually disconnected before servicing.
- When exposed to light, the Photovoltaic array supplies a DC voltage to this equipment.
- Disconnect all sources of supply before servicing.
- When a ground fault is indicated, normally grounded conductors may be ungrounded and energized, or normally ungrounded conductors may be grounded.

AVERTISSEMENT
- Les deux sources de tension AC et DC se terminent en interne.
- Chaque circuit doit être déconnecté individuellement avant l'entretien.
- Lorsqu'il est exposé à la lumière, le générateur photovoltaïque fournit une tension continue à cet équipement.
- Débranchez toutes les sources d'alimentation avant l'entretien.
- Lorsqu'un défaut à la terre est indiqué, les conducteurs normalement mis à la terre peuvent être non mis à la terre et sous tension, ou les conducteurs normalement non mis à la terre peuvent être mis à la terre.

5mins

WARNING
- Risk of electric shock from energy stored in capacitor.
- Do not remove cover until 5 minutes after disconnecting all sources of supply.

AVERTISSEMENT
- Risque de choc électrique dû à l'énergie stockée dans le condensateur.
- Ne retirez le couvercle que 5 minutes après avoir débranché toutes les sources d'alimentation.

CAUTION
- Risk of electric shock! Do not remove the upper front cover.
- No user serviceable parts inside.
- Servicing by qualified personnel only.

PRUDENCE
- Risque d'électrocution ! Ne retirez pas le capot avant supérieur.
- Aucune pièce réparable par l'utilisateur à l'intérieur.
- Entretien par du personnel qualifié uniquement.

CAUTION
- Read the instruction manual and safety instructions carefully before installing the inverter.

PRUDENCE
- Lisez attentivement le manuel d'instructions et les consignes de sécurité avant d'installer l'onduleur.

Labels must not be covered by unrelated objects (such as rags, cardboard boxes, equipment, etc.). Regular wiping is necessary to keep them visible at all times.

7. Explanations of symbols

The ELD series on-grid hybrid inverters come with some safety related labels. Ensure you carefully read and fully understand the labels before installing.

Symbol	Definition
	**Residual Power Discharge** Delayed discharge. Wait 5 minutes after power off until the components are completely discharged.
	**Electric Shock Hazard** The inverter contains fatal DC and AC power. All work on the inverter must be carried out by qualified personnel only.
	**Beware of Hot Surface** High-temperature hazard. Do not touch the product under operation to avoid being burnt.
	**Caution** Potential risks exist. Wear proper Personal Protective Equipment before any operations.
	**Grounding Terminal** Connect the inverter with grounding terminal to achieve grounding protection.
	Read through the user manual before any operations.
	**Electrical Polarity Mark** Pay attention to the polarity of the electrical connection.
	**Temperature Mark** Indicates the operating temperature range.
	**Up Mark** The inverter must always be transported, handled, and stored in such a way that the arrows always point upwards.

8. Electrical connection precautions

When handling energized inverters, comply with all current state regulations related to the prevention of electrical accidents.

⚠ DANGER

- All installation operations must be carried out by professional electrical engineers who have received training, thoroughly read this manual, and fully understood the relevant safety considerations.
- Ensure that the PV arrays are covered with opaque materials or the DC circuit breaker is disconnected before electrical connections. Exposure to sunlight will cause the PV array to generate dangerous voltages.
- When installing batteries, confirm the positive and negative terminals of the battery and ensure the battery is turned off.
- When connecting to the AC power, ensure that the breaker is disconnected.

NOTICE

The inverter can only be connected to the grid after obtaining permission from the local power department and ensuring all electrical connections are completed by a professional electrical engineer.

9. Operating precautions

⚠ DANGER

- Touching the batteries, the terminals of the power grid or PV array, etc., may cause death from electric shock or fire!
- Do not touch the batteries, terminals or conductors connected to the grid and PV circuit.

⚠ WARNING

Please wear protective gloves when operating the inverter as some internal components will heat up.

NOTICE

Pay attention to any instructions or safety documentation related to grid connections.

10. Maintenance precautions

⚠ DANGER

Before any maintenance, the electrical connection between the inverter and the grid should be disconnected first, followed by the disconnection of the DC side. Wait for at least 5 minutes until the internal components are fully discharged.

NOTICE

- The inverter can be restarted after removing the faults, which affects the safety performance. If any maintenance is required, please contact the local authorized service center.
- Unauthorized disassembly or alteration of components within the inverter is prohibited. Any losses caused by this will not be covered by the warranty or joint liability of EPEVER.

1 Product Introduction

1.1 Overview

The ELD series is a split-phase low-voltage on-grid PV hybrid inverter that integrates an on-grid PV inverter and a battery, featuring a 3R protection rating. With various built-in working modes to meet users' diverse needs, it supports grid charging, oil generator charging, solar charging, bypass output and AC independent output with parallel scalability. Additionally, it supports parallel operation of multiple split-phase inverters for application expansion.

The inverter optimizes the solar output power to achieve self-consumption, feeding excess energy into the grid or storing it in batteries to reduce reliance on the grid and provides backup power during outages. The uninterrupted power supply (UPS) mode supports inductive loads such as air conditioners or refrigerators, with an automatic UPS level switch time of less than 10 milliseconds (ms).

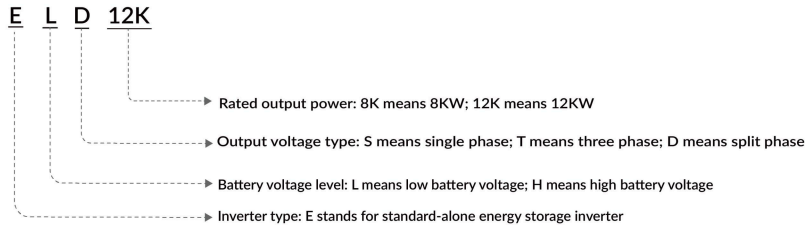
The ELD series inverter is applied to on-grid and off-grid solar power systems, integrating on-grid PV inverter and battery charging/discharging capabilities, offering a flexible solution for household electricity needs.

Features

- Intelligent air-cooled heat dissipation system, 3R rated dustproof and waterproof
- User-friendly APP operation through the WiFi module
- UPS level switching within 10ms
- PV maximum input supports oversizing up to 1.5 times the rated power
- PV input voltage range from 90V to 500V
- PV maximum working current 20A plus 4 channels
- High standard protection on the DC side, including standard surge level II protection and optional AFCI function
- Comprehensive anti-reverse current function
- Multiple AC parallel function for more flexible system solutions
- Supports battery sharing, enabling multiple inverters share one battery
- Optional RS485/WiFi/GPRS modules for smart monitoring
- RSD rapid shutdown to reduce device damage and prevent personnel injury
- The off-grid load can support 100% unbalanced load
- Supports two-wire control for generator start/stop functionality

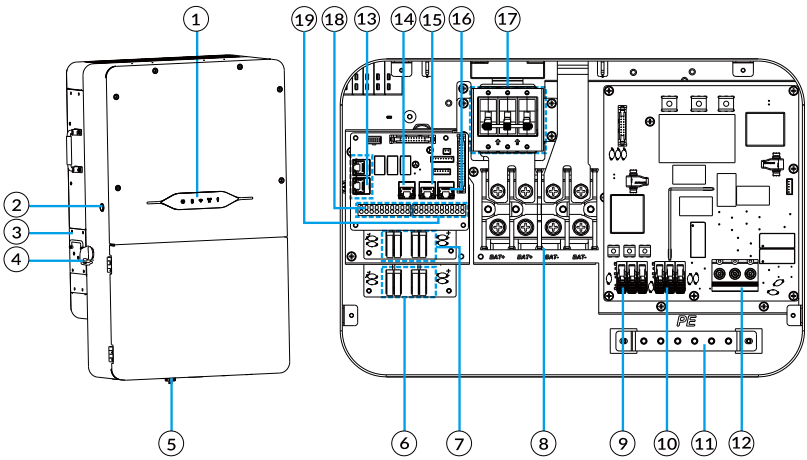
- Supports generator connection to the grid port, enabling simulated grid functionality
- Independent generator port for battery recharging, smart load, and AC coupling management

Naming rules



1.2 Product exterior

1.2.1 Appearance and ports



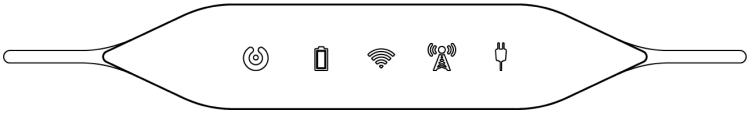
No.	Description	No.	Description
1	LED indicator	11	PE copper terminals
2	ON/OFF button	12	Grid port (From left to right: GRID-L2, GRID-N and GRID-L1)
3	External fan module	13	Parallel com. port
4	PV switch	14	DRMS
5	WiFi/GPRS com. port	15	DER_RS485 and wired monitoring com. port
6	PV3/4 input ports (PV3+/PV3-, PV4+/PV4-)	16	BMS com. port
7	PV1/2 input ports (PV1+/PV1-, PV2+/PV2-)	17	Battery DC circuit breaker
8	Battery input ports (BAT+/BAT-)	18	COM1 port
9	Smart AC port(1) (From left to right: Smart-L2, Smart-N and Smart-L1)	19	COM2 port
10	Emergency load port(2) (From left to right: BACK-UP-L2, BACK-UP-N and BACK-UP-L1)		

For the introduction of Ports 5, 13, 14, 15, 16, 18, and 19, please refer to Subsection 3.7 Connecting the COM cable.

(1) It is also referred to as the GEN port in some versions (From left to right: GEN-L2, GEN-N and GEN-L1).

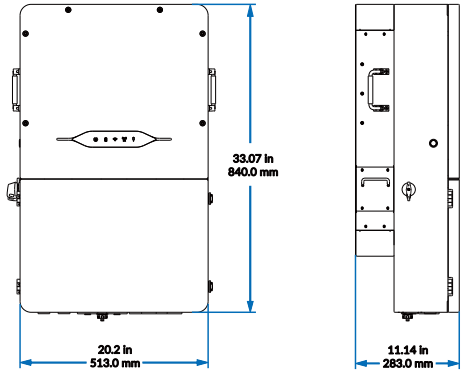
(2) Emergency load, also known as backup load, critical load or off-grid load, with the same meaning. When the grid is cut off, system switches to the off-grid operation mode, and the battery supplies power to the inverter by converting DC to AC through inversion.

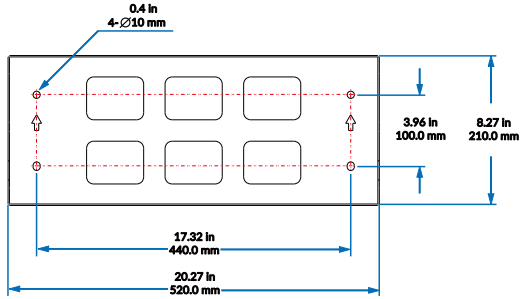
1.2.2 Indicators

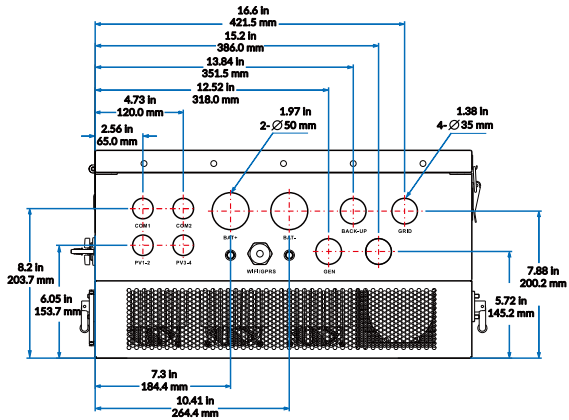


No.	Indicator	Symbol	Status	Description
1	Operating		Flashing blue (2s on 2s off)	Standby
			Flashing blue (1s on 1s off)	Self-test
			Solid blue	The inverter is running normally.
			Flashing red (1s on 1s off)	Recoverable faults
			Solid red	Unrecoverable faults
2	Battery		Solid ON	Battery is online.
			OFF	Battery dropout
3	IoT		Solid ON	Data sending in Software/IoT.
			OFF	No data sending in Software/IoT.
4	Grid		Solid ON	Normal grid.
			OFF	Abnormal grid
5	Load		Solid ON	Normal AC output
			OFF	Abnormal AC output
6	Upgrade		Pink (3s on)	Upgrade successful.
			Solid red	Upgrade failed.
			Flashing	Upgrading.

1.2.3 Dimensions

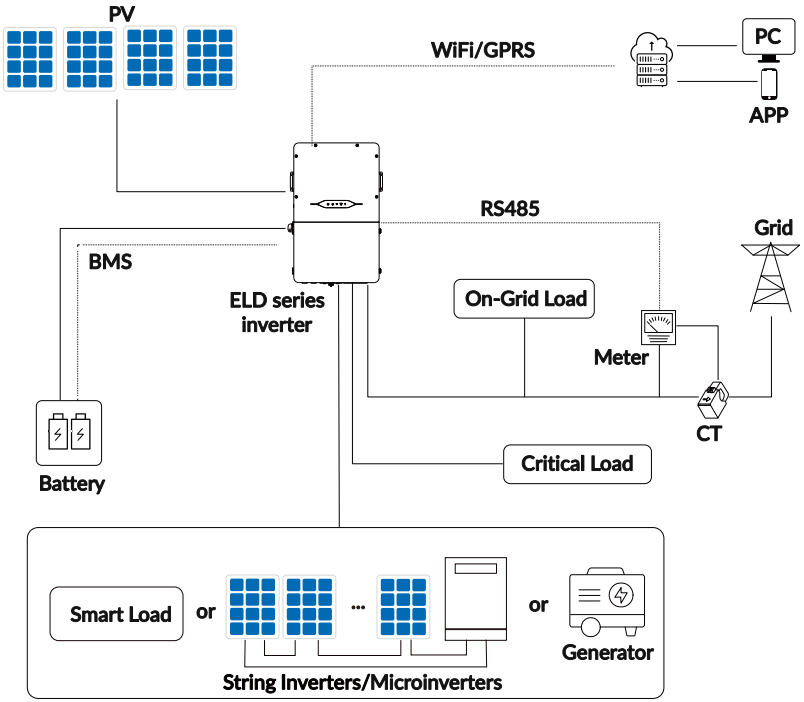






1.3 Application scenarios

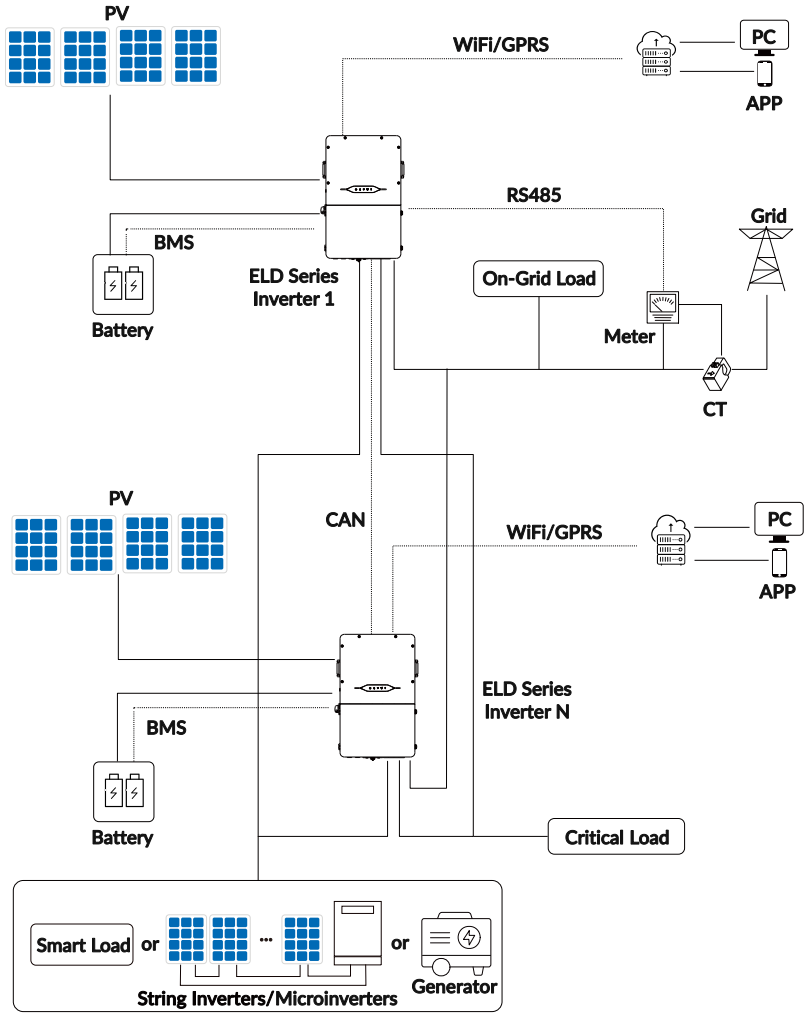
1.3.1 Schematic diagram of single inverter connection



Note: On-grid load also referred to as general load.

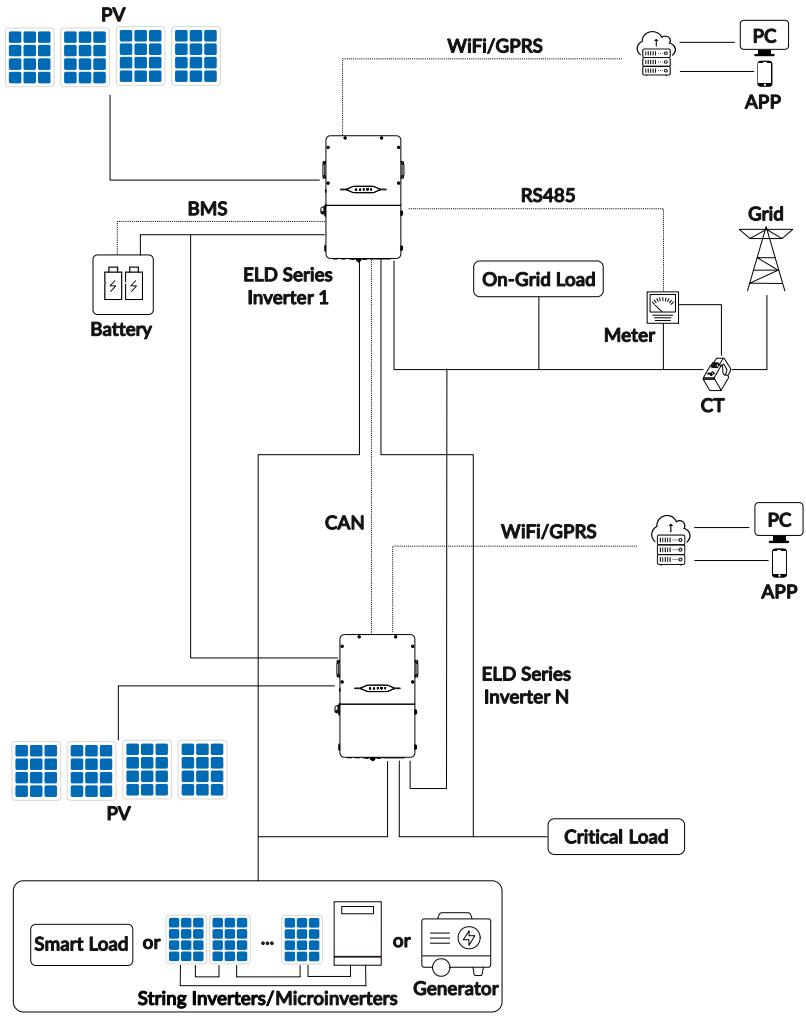
1.3.2 Schematic diagram of multiple inverters connection

- Battery independent



Note: On-grid load also referred to as general load.

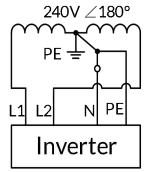
- Battery sharing



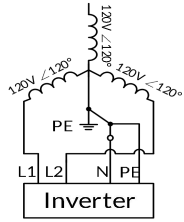
Note: On-grid load also known as general load.

1.4 Supported grid types

The ELD series supports the following grid configurations: 120/240V split-phase (120VAC between L1-N and L2-N with a 180° phase difference), and 120/208V two-phase derived from a three-phase system (120VAC between L1-N and L2-N with a 120° phase difference).



120/240V Split Phase



120/208V 2 Phase of 3

NOTICE

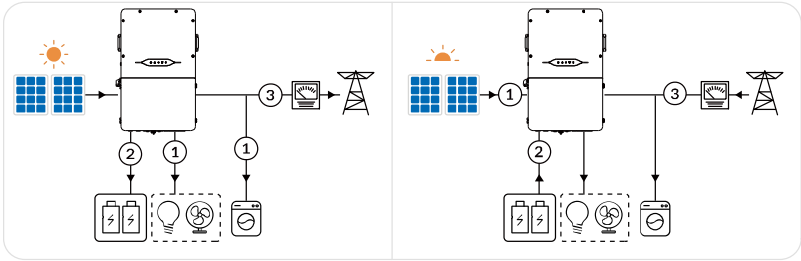
- The Grid PE-N Bonding Detection function is enabled by default. To disable this function, configure it via the APP. For details, refer to the "Solarman Business APP Instructions Manual".
- In North American split-phase power system areas, the inverter's PE and the grid's N line must be externally bonded in the distribution cabinet, and the Grid PE-N Bonding Detection function must be enabled in the APP. Failure to do so will prevent the inverter from operating in on-grid mode.
- In split-phase power system areas where bonding the inverter's PE and the grid's N line is not required, the Grid PE-N Bonding Detection function must be disabled in the APP. Otherwise, the inverter will not operate in on-grid mode.

1.5 Working modes

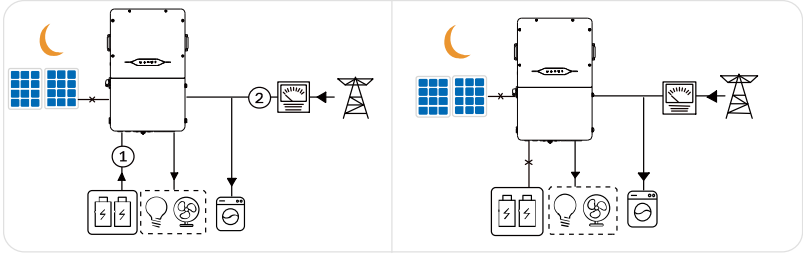
1.5.1 Self consumption mode

Day time: When the power generated in the PV system is sufficient, it will supply the loads in priority. And the excess power will charge the batteries first. The remaining power will be sold to the grid.

When the power generated in the PV system is insufficient or no power is generated, the battery will supply the loads in priority. If the battery power is insufficient, then the load will be powered by the grid.



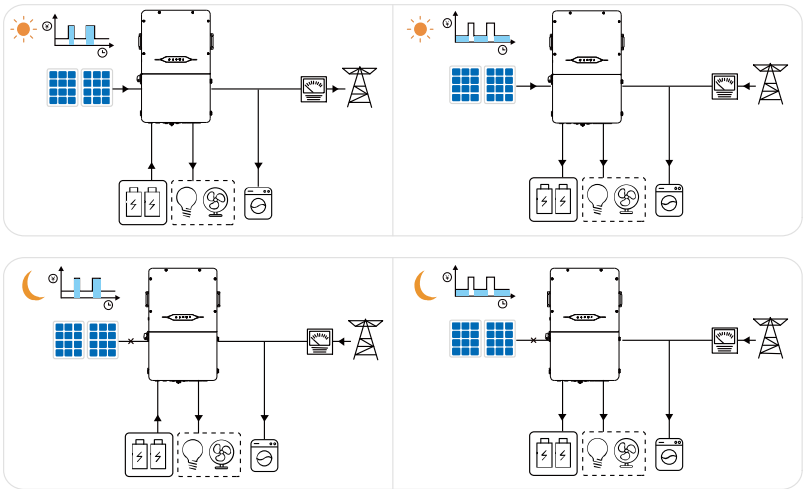
Night: If the battery power is sufficient, the load will be powered by the battery. If the battery power is not enough, the load will be powered by the grid.



Scenario recommendation: It is suitable for areas with high electricity prices and little or no solar power generation subsidies.

1.5.2 Economic mode

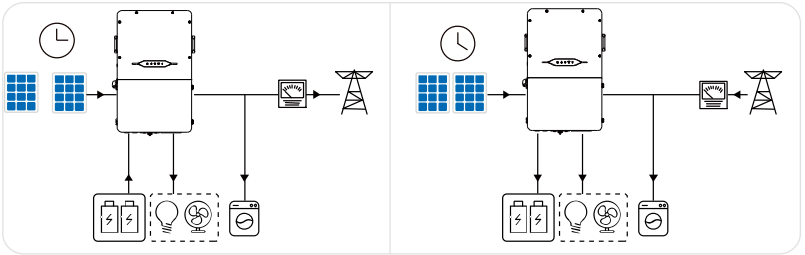
Users can set the grid charging power based on their own electricity demand and price, enabling battery charging during periods of low electricity demand and switching to a self-consumption mode during high electricity demand periods. The stages of high and low electricity demand are divided by season, week, and time of day, with summer and winter primarily determining high and low demand, weekdays and weekends primarily determining electricity usage, and day and night primarily determining the high and low electricity demand.



Scenario recommendation: Users with distinct high and low electricity demand, such as less electricity during weekdays and more on weekends, can set up battery charging at night on weekends. For example, if local summer PV generation significantly differs from winter, battery charging can be scheduled at night during winter.

1.5.3 Time-of-use mode

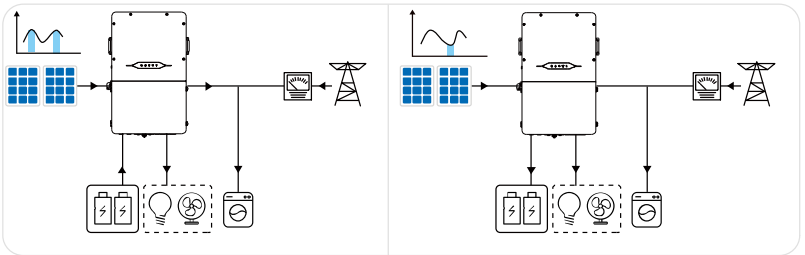
The system performs the charging and discharging according to the set charging/discharging period and power.



Scenario recommendation: It is suitable for scenarios when the peak-valley electricity price varies a lot, and it can only be used when local laws and regulations are met, such as whether the battery is allowed to discharge and sell to the power grid. When the electricity price is at its valley, set the time for the grid to charge the battery. When the electricity price is at its peak, the battery will power the load first, and the remaining power can be sold to the grid. Thereby earning the corresponding profit from the grid price difference.

1.5.4 Peak shaving mode

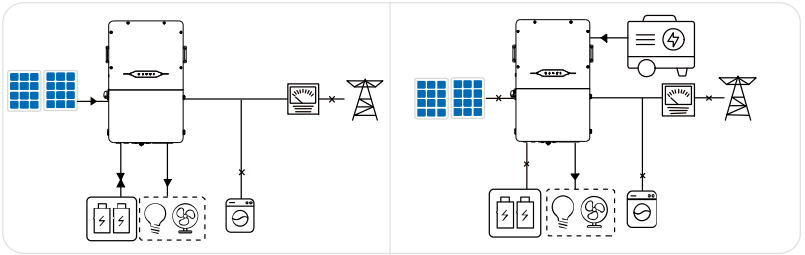
Users can set the peak shaving power according to the actual need. During peak hours, the inverter limits the power supplied by the grid. The insufficient power is provided by PV and battery, reducing the local electricity consumption. During off-peak hours, the grid charges the battery, and supplies power to the load simultaneously.



Scenario recommendation: Recommended for use in areas with high electricity consumption.

1.5.5 Emergency power supply mode

When the power grid is cut off, PV will supply the loads in priority; if the PV power generation cannot meet the load usage, the battery discharges to supplement. If the PV power generation exceeds the load demand, the surplus power charges the battery. When the battery runs out of energy, the system can switch to a diesel generator mode, and then the generator supplies power to the load.



Scenario recommendation: Recommended for use in areas with unstable power grid.

2 Installation

2.1 Precautions

DANGER

- Do not install the inverter in a place near flammable, explosive, or corrosive materials.
- Do not install the inverter in a place that is easy to touch, especially within children's reach.

WARNING

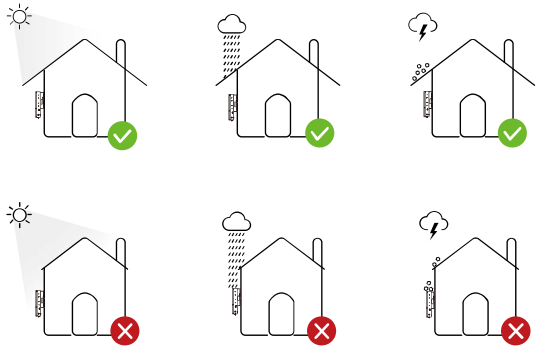
High temperature exists when the inverter is working. Do not touch the surface to avoid burning.

CAUTION

When transporting and moving inverters, the weight of the equipment should be considered. Determine the installation position. At least two persons are required to install the inverter.

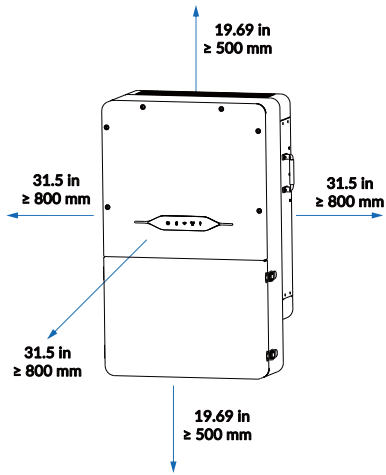
2.1.1 Installation environments

- The place to install the inverter shall be well-ventilated for heat radiation.
- Installation environment temperature range: -25℃ to 60℃, relative humidity: 5% to 95% (non-condensing).
- Install the inverter in a sheltered place to avoid direct sunlight, as increased temperature may lead to reduced power output.
- It is recommended to choose a shaded installation site or construct a sunshade.
- Do not install the inverter in a place near flammable and explosive materials.
- The installation carrier must be fireproof; do not install the inverter on flammable materials.
- Ensure the installation surface is sturdy and meets the load-bearing requirements for the inverter.
- Do not install the inverter on the support with poor sound insulation to avoid the noise generated by the working product, which may annoy the residents nearby.
- The altitude to install the inverter must not exceed 4,000 meters.

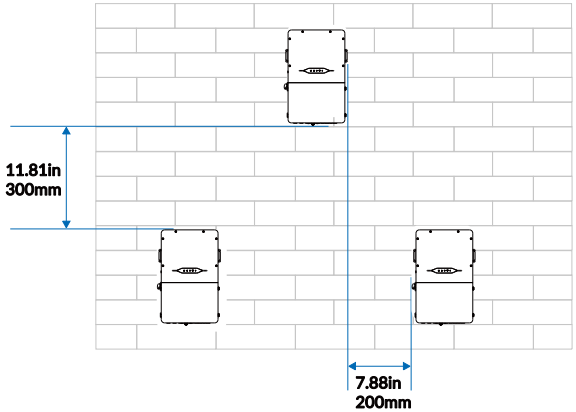


2.1.2 Installation space

When installing the inverter, a certain amount of space should be reserved to ensure that there is enough space for installation and heat dissipation.



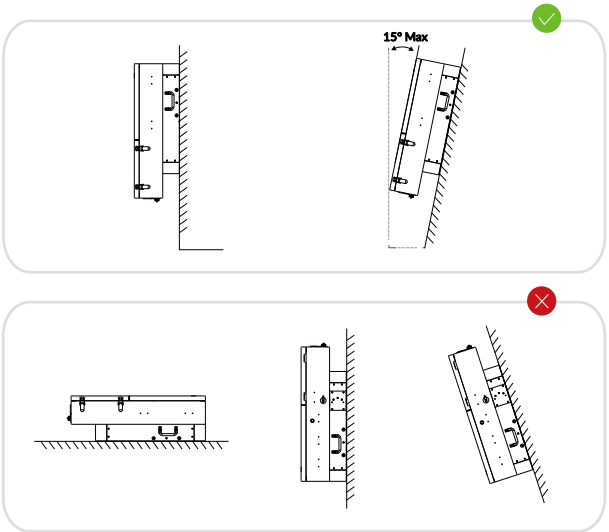
In scenarios with multiple inverters, a linear installation is recommended when space is sufficient; when space is limited, the following Triangle installation is recommended. It is not recommended to install multiple inverters in a stacked configuration.



2.1.3 Installation angle

Inverter supports wall mounting. Installation angle requirements are as follows:

- Install the inverter vertically or at a maximum back tilt of 15 degrees.
- Do not install the inverter in a tilted, horizontal, upside down, excessively backward-leaning, or sideways-tilted position.



2.1.4 Installation tools

Prepare the following tools to install and connect the inverter.

2.2 Installation steps

2.2.1 Checking before installation

Tip	Please carefully check the product packaging and accessories list before installation.

- **Check packing**

Packaging materials and components may be damaged during transportation. Therefore, before installing the inverter, please inspect its packaging materials. Check the packaging for any damage, such as holes, cracks, etc. If any damage is found on the inverter, do not open the package and contact your dealer as soon as possible. It is recommended to inspect the packaging materials within 24 hours before installing the inverter.

- **Check accessories list**

After unpacking the inverter, inspect the product and its accessories to ensure they are complete and undamaged. If any parts are missing or damaged, please contact the dealer.

2.2.2 Moving the inverter

Open the packing box, and two operators place their hands under the inverter's heat sink, lifting the inverter out of the packing box. Then, move the inverter horizontally to the designated site.

⚠ CAUTION

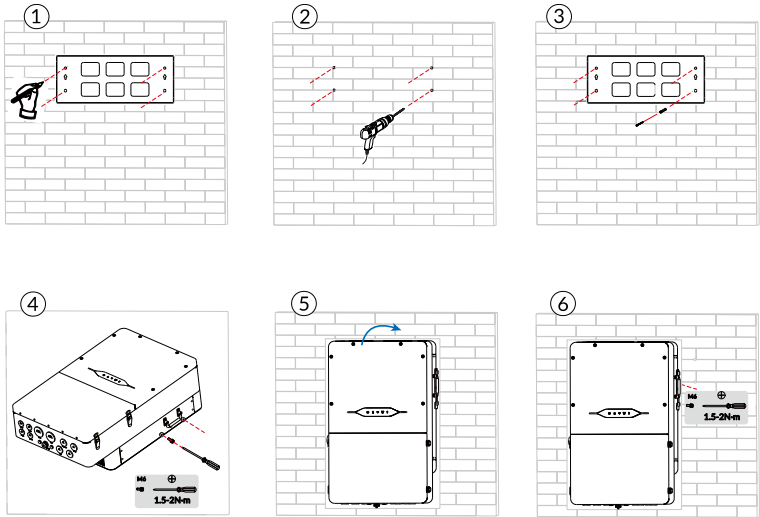
- Please maintain balance when moving the inverter to avoid dropping and injuring the operator.

- The power line and signal line ports at the bottom of the inverter cannot bear weight; do not let the terminal connectors directly touch the ground; place the inverter horizontally.

NOTICE

When placing the inverter on the ground, use foam or cardboard underneath to prevent damage to the casing.

2.2.3 Installing the inverter



Step 1: Select a proper wall which meets the installation requirements. Put the mounting plate on the wall horizontally and mark positions for drilling holes. Then use an impact drill to drill holes in the wall (hole diameter 10mm). When drilling, keep the impact drill vertical to the wall, and the drilling depth slightly greater than the length of the expansion tube. After drilling, verify the hole positions with the mounting plate; if the deviation is too large, reposition and drill again.

Step 2: Slowly tap the expansion screw tube into the drilled hole with a hammer.

Step 3: Align the mounting plate with the holes, put shrapnel and flat pads, and fix the mounting plate with hexagonal nuts.

Step 4: Secure the fasteners to the inverter with M6 screws.

Step 5: Hang the inverter on the mounting plate.

Step 6: Lock the inverter and mounting plate with M6 screws.

3 Electrical Connection

3.1 Safety cautions

Ensure that both AC and DC sides are not energized before installation and maintenance. Since the capacitor is still live for a period of time after the DC side of the inverter is disconnected, it is necessary to wait 5 minutes to ensure that the capacitor is discharged completely. The ELD series on-grid hybrid inverters are used in the PV energy storage systems. Improper use may damage the inverter.

⚠ DANGER

Before carrying out the electrical connections at the DC side, ensure that the PV panels are covered with opaque material or disconnect the circuit breaker at the DC side. If the PV panels are exposed to sunlight, the PV array will generate hazardous voltages.

⚠ WARNING

- The installation and maintenance of inverters must be carried out by professional electrical engineers. When working on high-voltage/high-current systems (such as inverters and battery systems), rubber gloves and protective clothing (including protective glasses and boots) should be worn.
- As a on-grid hybrid inverter without a transformer, the ELD series requires that both the positive and the negative pole of the PV array can not be grounded. Grounding either pole will result in inverter malfunction. In a PV power generation system, all non-current-carrying metal components (such as the mounting frame, combiner box/distribution cabinet enclosures, and inverter enclosures) should be properly grounded to ensure safety.

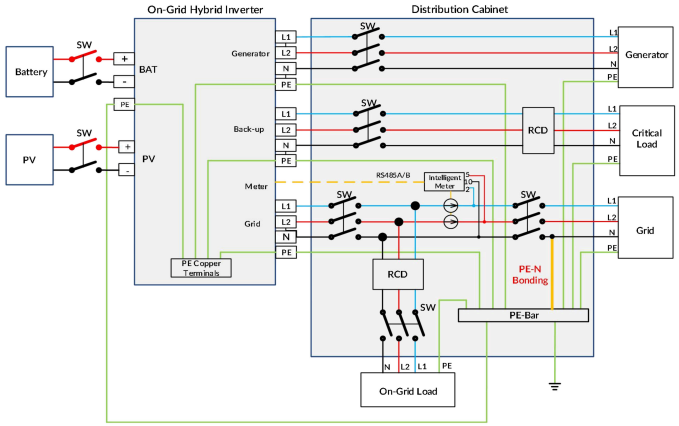
3.2 Circuit diagram

NOTICE

The following is the circuit diagram of ELD series on-grid hybrid inverters based on the regulation requirements of different countries/regions. Refer to the specific requirements of local regulations.

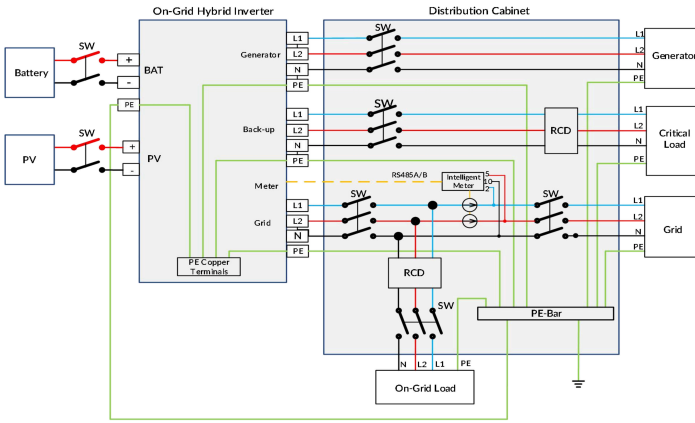
Scenario 1: N and PE wires are bonded together in the distribution cabinet (applicable to the North American split-phase power system areas.)

Ensure that the grid's N and PE wires are bonded in the distribution cabinet, and the Grid PE-N Bonding Detection function has been enabled in the APP. Additionally, for the electricity meter, the voltage sampling signal: PIN2 is connected to L1, PIN5 is connected to L2, PIN10 is connected to N, and the current sampling is connected to two channels CT1-1 and CT1-2.

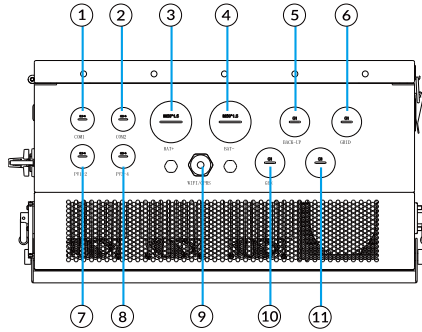


Scenario 2: N and PE wires are not bonded together in the distribution cabinet (applicable to other split-phase power system areas.)

Ensure that the grid's N and PE wires are disconnected in the distribution cabinet, and the Grid PE-N Bonding Detection function has been disabled in the APP. Also, for the electricity meter, the voltage sampling signal: PIN2 is connected to L1, PIN5 is connected to L2, PIN10 is connected to N, and the current sampling is connected to two channels CT1-1 and CT1-2.

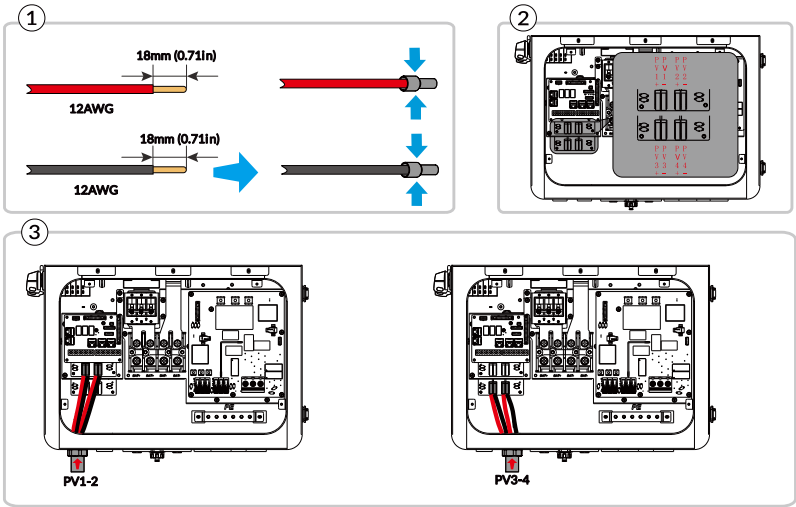


3.3 Port cable description



Port	Definition	Cable type	Recommended cable specification
1	COM1	--	--
2	COM2	--	--
3	BAT+	Outdoor multi-core copper cable	1AWG*2
4	BAT-	Outdoor multi-core copper cable	1AWG*2
5	BACK-UP	Outdoor multi-core copper cable	6AWG
6	GRID	Outdoor multi-core copper cable	4AWG
7	PV1-2	Outdoor multi-core copper cable	12AWG
8	PV3-4	Outdoor multi-core copper cable	12AWG
9	WIFI/GPRS	--	--
10	GEN	Outdoor multi-core copper cable	6AWG
11	GRID (Reserved)	Outdoor multi-core copper cable	4AWG

3.4 Connecting the PV cable



Step 1: Select the appropriate cable type and specification according to Section 3.3 Port cable description. It is recommended to differentiate the positive and negative terminals with different colors.

Step 2: Use wire strippers to strip the insulation layer of the PV cable to a suitable length (as shown in Figure ①).

Step 3: Insert the stripped cables into their respective positive and negative metal terminals. Use wire crimper to firmly press the cables, ensuring a secure connection between the cables and the metal terminals.

Step 4: Thread the crimped PV cables through the locking nuts, then insert them into its respective plastic housings until the orange snap is pressed in a horizontal position, indicating that the metal cores are securely seated.

Step 5: Use a multimeter to check the positive and negative poles of PV cables, and then, connect them to the PV terminals of the inverter accordingly.

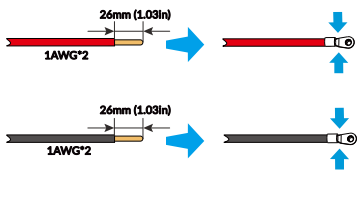
If it is necessary to remove the PV connectors from the inverter, gently lift the orange clip on the terminal upwards to carefully remove the PV connectors. If the PV system is configured in parallel mode, all MPPT strings must be connected.

⚠ WARNING

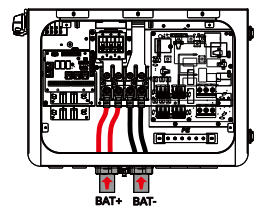
- Ensure the "DC SWITCH" has been rotated to "OFF" before removing the PV connectors.
- Each PV array's total short-circuit current must not exceed the "Maximum Short-Circuit Current per String" (see Chapter 8 Technical Specifications) and reverse connection time must be less than 5 minutes. Avoid frequent miswiring to prevent inverter damage.
- For ELD series on-grid hybrid inverters, PV module open-circuit voltage must not exceed 500V, and current per input must not exceed 20A. Exceeding the limits may cause inverter failure.
- PV inputs must be connected to a 550VDC-rated DC circuit breaker with arc-extinguishing capability before connecting to the inverter. In case of PV reverse polarity, disconnect the DC breaker first, then the inverter PV terminals to avoid arcing and potential damage.
- When the inverter is not used with a battery, the open-circuit voltage range of the PV panel configuration can be set between 100VDC and 500VDC.
- When the inverter is used with a battery, the open-circuit voltage range of the PV panel configuration can be set between 100VDC and 400VDC.
- When the inverter is used with a lead-acid battery, the open-circuit voltage range of the PV panel configuration can be set between 100VDC and 350VDC.
- Each PV panel power configuration must be within 1.6 times the rated power of each MPPT channel (The rated power of each MPPT channel is calculated as the inverter's rated power divided by the number of MPPT channels. For example, the ELD12K inverter has a rated power of 12,000W with 4 MPPT channels, the maximum PV panel power configuration per channel is 1.6*12,000W/4) = 4,800W).
- The PV panel configuration must be installed as the above requirements; otherwise the inverter will enter the standby or self-test mode, and cannot charge the batteries or supply off-grid output.

3.5 Connecting the battery cable

①



②



Step 1: Select the appropriate cable type and specification according to Section 3.3 Port cable description. Use wire strippers to strip the insulation layer of the battery cable to a suitable length (as shown in Figure ①).

Step 2: Insert the stripped cables into the conductor crimping area of the OT terminal. Use a wire crimper to firmly press the cables, ensuring a secure connection between the cables and the metal terminals. Recommended OT terminal model: RNB 60-8.

Step 3: Place the crimped positive and negative cables on the corresponding BAT+ and BAT- terminal blocks respectively, and secure them using M8 screws. The recommended tightening torque is 25 N·m.

Step 4: Use a multimeter to check the correct connection of the battery positive and negative poles and PE cables, and then finished.

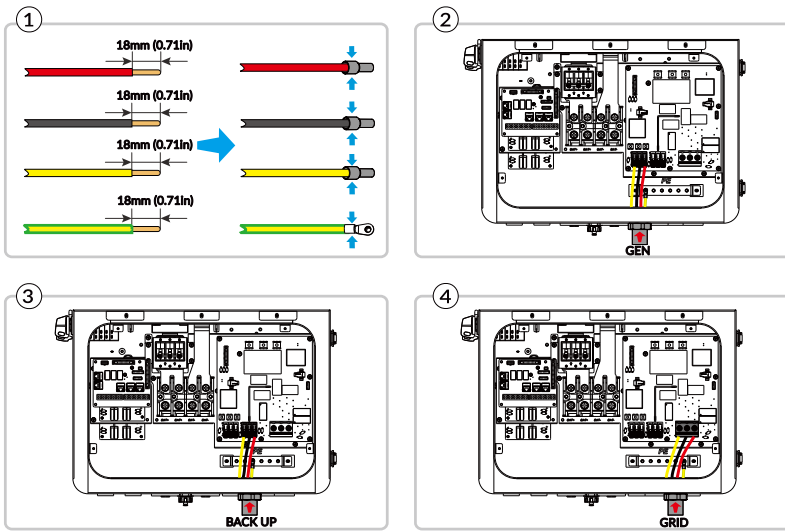
⚠ DANGER

Check the correct connection of the battery positive and negative poles. Do not reverse the battery, otherwise, the controller will be damaged.

3.6 Connecting the AC load, Grid and GEN cable

The residual current monitoring unit (RCMU) is integrated into the inverter. When the inverter detects the leakage current is higher than 240mA, it can disconnect from the grid quickly. When the external AC switch has a leakage protection function, its rated leakage protection current is required to be ≥ 300mA.

Note: For the Backup load cable port, the GEN cable port and the Grid AC cable port, the terminals from left to right are arranged as L2, N, L1.



Step 1: Select the appropriate cable type and specification according to Section 3.3 Port cable description. And use wire strippers to strip the insulation layer of the specified cable to a suitable length (as shown in Figure ①).

Step 2: Insert the stripped cables into their respective positive and negative metal terminals. Use a wire crimper to firmly press the cables, ensuring a secure connection between the cables and the metal terminals.

Step 3: Insert the crimped L1, L2, and N cables into their respective terminal holes. Ensure the orange snap on the terminal is pressed into a horizontal position, indicating that the metal cores are securely seated (as shown in Figure ② and ③).

Step 4: First loosen the terminal screws, then insert the L1, L2, and N cables into their respective terminal holes. Use a Phillips screwdriver to tighten the screws (as shown in Figure ④).

Step 5: Insert the stripped yellow-green ground wire into the conductor crimping area of the OT terminal and crimp it firmly using a crimping tool (as shown in Figure ①). Recommended OT terminal model: OT-M5, and the recommended ground wire gauge is ≥ 6 AWG.

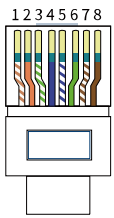
Step 6: Secure the OT terminal to the grounding PE copper busbar using M5 screws, as shown in Figure ②③④. The recommended tightening torque is 2 N·m.

Step 7: Use a multimeter to check the correct connection of the cables and then finished.

3.7 Connecting the COM cable

3.7.1 BMS

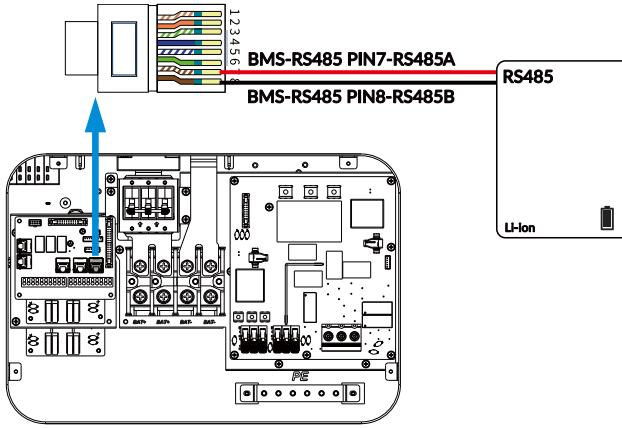
The BMS communication port is used for the communication between the inverter and the lithium battery. The pins of the BMS port (RJ45) are defined as follows:

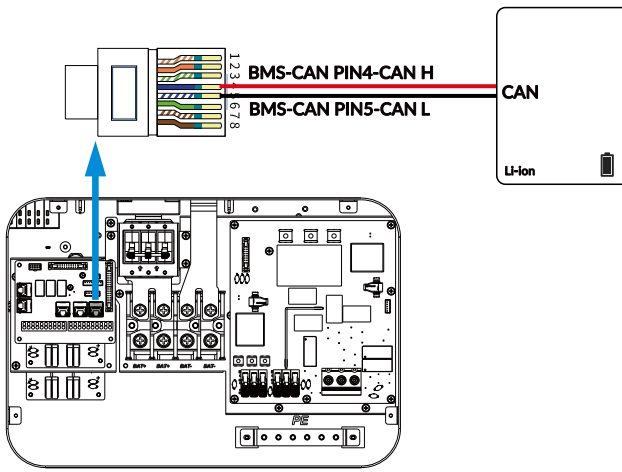
Picture	Pin	Name	Description
	1	Reserved	-
	2	Reserved	-
	3	NTC-	Battery temperature sampling
	4	BAT-CANH	Lithium battery CAN high-level data
	5	BAT-CANL	Lithium battery CAN low-level data
	6	NTC+	Battery temperature sampling
	7	BAT-485A	Lithium battery RS485 differential signal +
	8	BAT-485B	Lithium battery RS485 differential signal -

Note: For specific details on the battery usage, please refer to the ELD Series Battery Instructions

on the EPEVER official website: https://www.epever.com/products/.

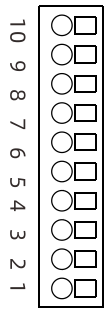
- Schematic diagram of RS485 and CAN communication connections for lithium batteries



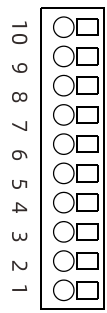


3.7.2 COM1/COM2

The pins of the COM1 port (DG236-5.0-10P) are defined as follows:

Picture	Pin	Name	Description
	1	ATS-240	Reserved
	2	GNDS	GNDS
	3	GEN_ON1	Generator back-up dry contact
	4	GEN_ON2	
	5	GEN_ST1	Generator start/stop dry contact
	6	GEN_ST2	
	7	RSD_IN1	RSD switch input port 1
	8	RSD_IN2	RSD switch input port 2
	9	RSD_+12V	RSD supply port +
	10	RSD_GND	RSD supply port -

The pins of the COM2 port (DG236-5.0-10P) are defined as follows:

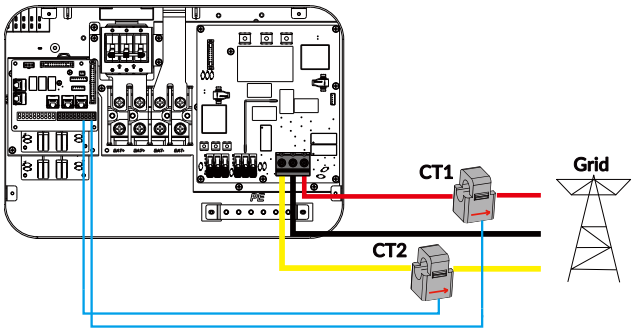
Picture	Pin	Name	Description
	1	CT1+	Current transformer 1 input positive pole (White line)
	2	CT1-	Current transformer 1 input negative pole (Black line)
	3	CT2+	Current transformer 2 input positive pole (White line)
	4	CT2-	Current transformer 2 input negative pole (Black line)
	5	BAT_NTC+	Battery temperature sampling input
	6	BAT_NTC-	
	7	Meter_RS485A	Meter RS485 communication
	8	Meter_RS485B	
	9	+13VS	Auxiliary supply + 13V

	10	GNDS	GNDS

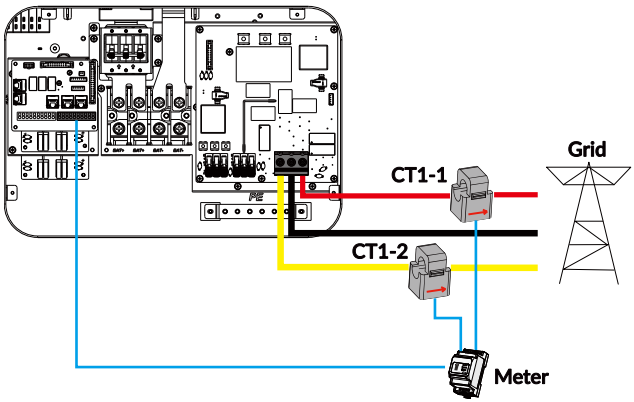
Differences exist in the use of CT/Meter between single-inverter systems and multi-inverter parallel systems. In a single-inverter system, internal current sensor, CT and meter can be used; install CT or meter at the grid port to collect the grid port current or power, and the anti-reverse current. In a multi-inverter parallel system, only meters can be used; install meter at the main grid input port, to distribute energy among parallel-connected inverters and achieve the anti-reverse current function.

- For a single-inverter system without on-grid load, the following three options are used to achieve the anti-reverse current function: CT, Meter, or neither CT nor Meter. See schematic diagrams below for details.

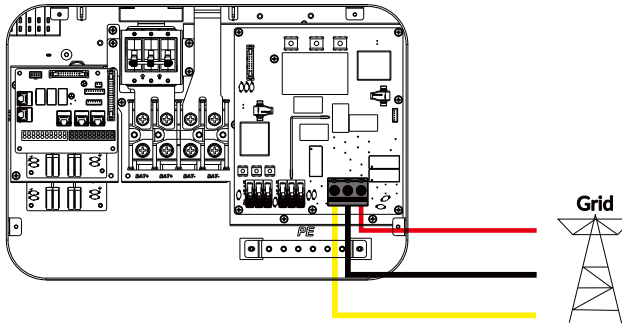
① Without On-Grid Load + Anti-reverse Current + CT



② Without On-Grid Load + Anti-reverse Current + Meter

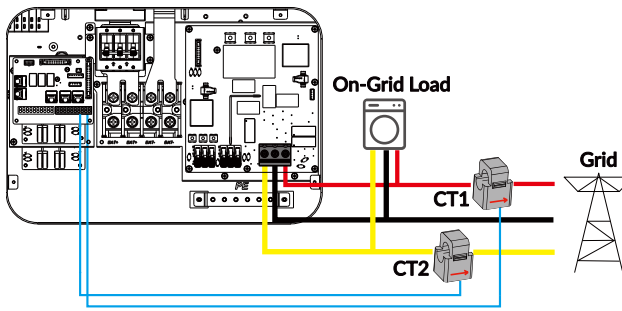


③ Without On-Grid Load + Anti-reverse Current + No CT/ Meter

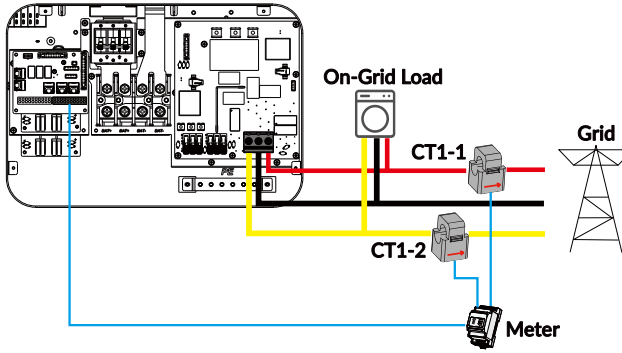


- For a single-inverter system with on-grid load, the following two options are used to achieve the anti-reverse current function: CT and Meter. See schematic diagrams below for details.

① With On-Grid Load + Anti-reverse Current + CT

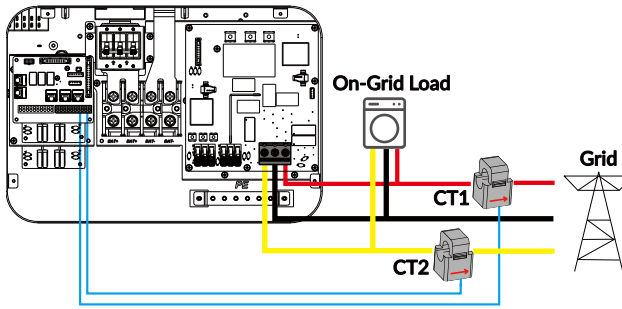


② With On-Grid Load + Anti-reverse Current + Meter

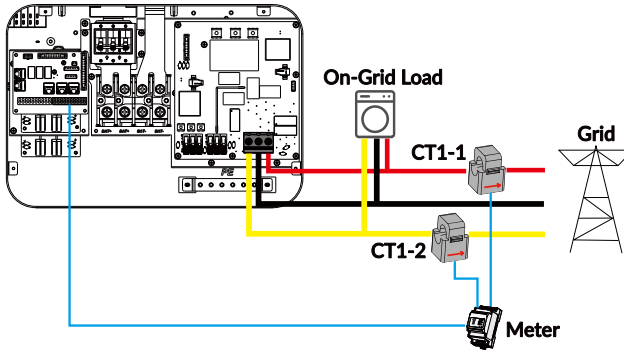


- For a single-inverter system with on-grid load, three options are available when there is no anti-reverse current function: CT, Meter, or neither CT nor Meter. See schematic diagrams below for details.

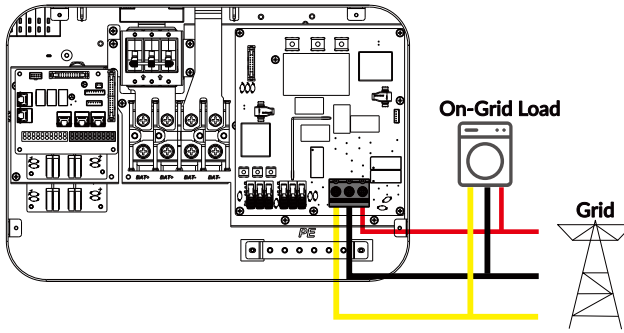
① With On-Grid Load + No Anti-reverse Current + CT



② With On-Grid Load + No Anti-reverse Current + Meter

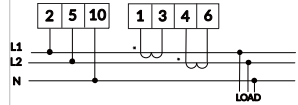
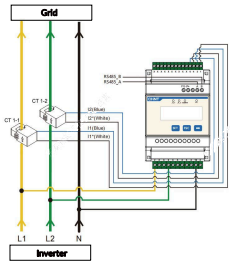
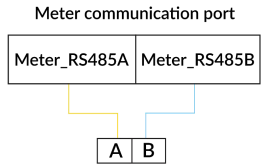
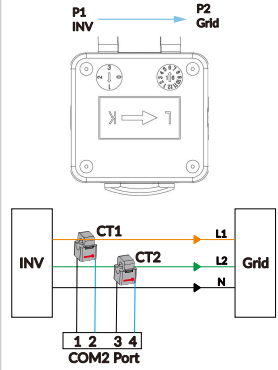


③ With On-Grid Load + No Anti-reverse Current + No CT/ Meter



3.7.3 Connecting the Meter/CT port (meter is an optional accessory)

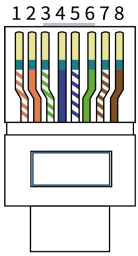
The dry contacts of the COM2 communication port can be connected to CT1, CT2, and the electricity meter signals. This connection is used for communication between the inverter and the electricity meter, as well as for collecting the current signals flowing through CT.

 Meter for single inverter 2 CTs with a CT current ratio of 100A/40mA	 Meter for parallel-connected inverters 2 CTs with a CT current ratio of 600A/40mA	 Meter Connection Schematic Diagram
①	②	③
		 CT1/CT2 for inverter
④	⑤	⑥

- PIN 7 and PIN 8 of the COM2 port on the inverter are used for meter communication. The appearances of Meters are shown as Figure ①②. PIN 7 and PIN 8 of the COM2 port correspond to A and B of the meter, shown as Figure ⑤.
- Connection of the Meters is shown as Figure ③. PIN 2/5/10 of the meter are connected to the voltage signal L1, L2 and N respectively. PIN 1/3 and PIN 4/6 of the meter are connected to CT1-1 and CT1-2, respectively. The installation direction of the electricity meter CT is as shown in Figure ④. The arrow on the electricity meter CT should point towards the grid.
- The installation direction and wiring method of CT1/CT2 is shown in Figure ⑥, along with the port definitions for the COM2 port type. The CT arrows point toward the grid.

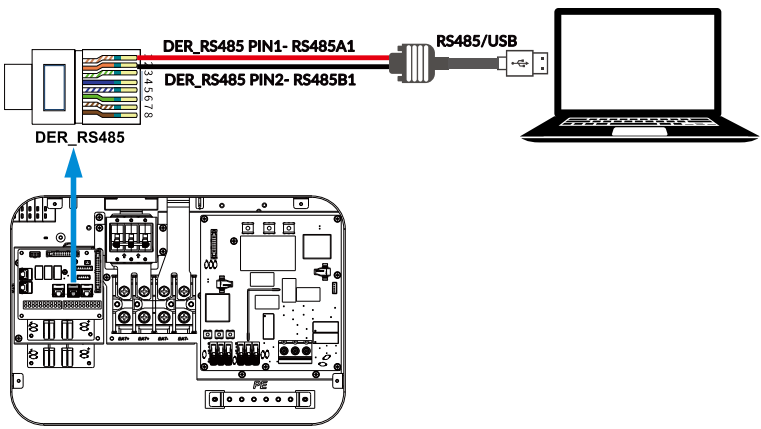
3.7.4 DER grid dispatch and wired monitoring com. port

The pins of the DER grid dispatch and wired monitoring com. port (RJ45) are defined as follows:

Picture	Pin	Definition	Description
	1	RS485-A1	Wired monitoring RS485A (+)
	2	RS485-B1	Wired monitoring RS485B (-)
	3	RS485-A2	Reserved
	4	RS485-B2	Reserved
	5	CANH2	Reserved
	6	CANL2	Reserved
	7	RS485-A3	DER standard communication (+)
	8	RS485-B3	DER standard communication (-)

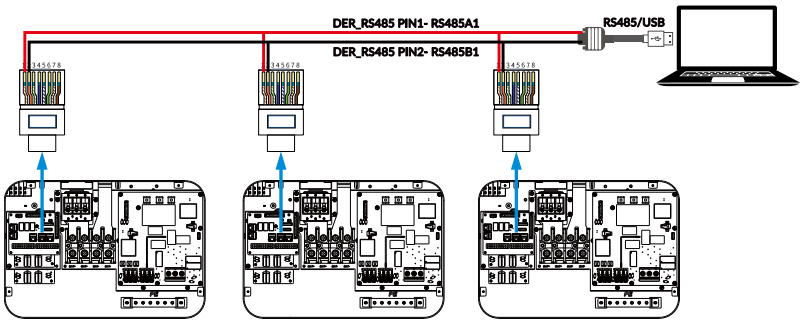
- **RS485 (monitoring via cable)**

As shown in the figure, connect the RS485-A1 and RS485-B1 of the inverter to the TX+ and TX- of the RS485 to USB adapter, and then connect the adapter's USB port to the computer. Note that it is recommended to use double-shielded Cat5e anti-interference network cable as the communication cable between the energy storage inverter and the RS485-to-USB adapter.



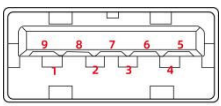
- **RS485 (inverter cascade monitoring)**

Multiple inverters are connected in parallel through RS485 communication cables. When multiple inverters are connected via RS485 communication cables, different communication addresses must be set to distinguish the inverters.

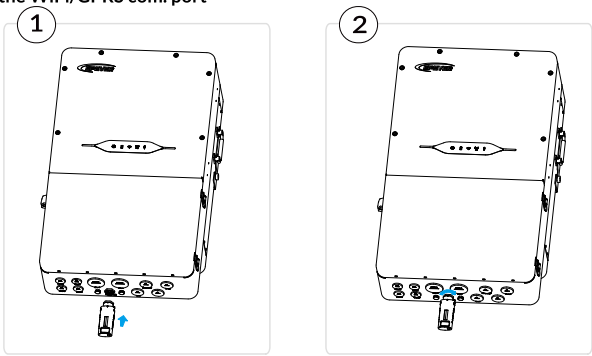


3.7.5 WiFi/GPRS com. port

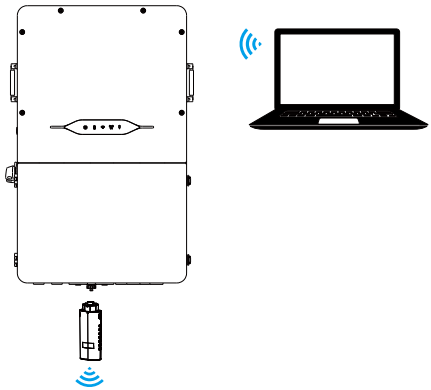
Connect a USB drive to the WiFi/GPRS com. port for inverter firmware upgrades, or connect a WiFi/GPRS module for inverter remote monitoring. The pins of the WiFi/GPRS com. port (USB-A 3.0) are defined as follows:

Picture	PIN	USB-A 3.0	Description
	1	+5V	+5V
	2	D-	Data interface
	3	D+	
	4	GND	Power ground
	5	RS485-A	RS485 communication
	6	RS485-B	
	7	Reserved	-
	8	Reserved	-
	9	Reserved	-

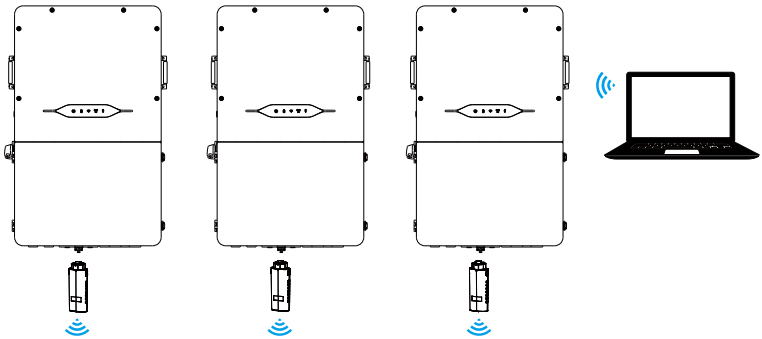
Connecting the WiFi/GPRS com. port



Installing a WiFi/GPRS module for single inverter

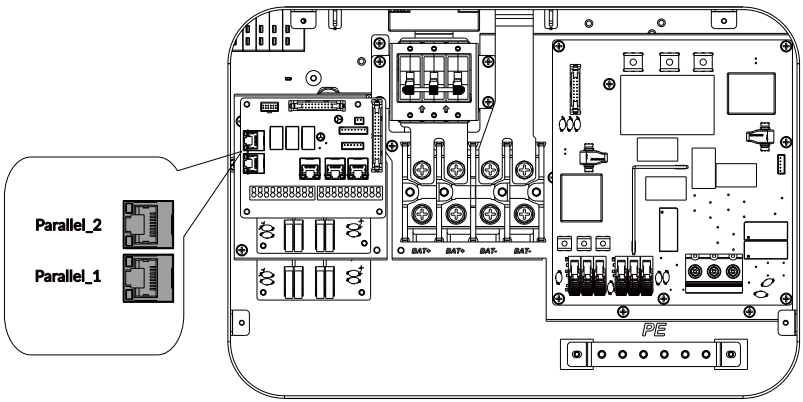


Installing WiFi/GPRS modules for multiple inverters



The inverter's operational information (such as power generation, alarms, and operational status) can be uploaded to the server via communication modules like WiFi/GPRS. Users view this information via a WEB interface or an APP, as needed. An account for the WEB or APP is required, and users need to bind the inverter with the serial number of the WiFi/GPRS communication module. The WiFi/GPRS serial number is stuck on both the packaging box and the module itself.

3.8 Parallel connection port

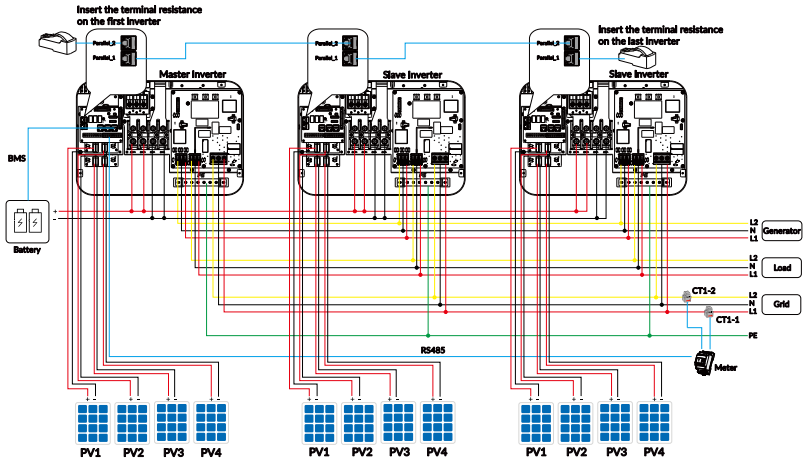


In the parallel system, one of the inverters is set as the master and the others as slaves through APP or monitoring software.

For the scenario where critical load is also connected in parallel under parallel system:

- Connect an 8-pin terminal resistor (optional) with the Parallel_1 and Parallel_2 on the first and last inverters.

- The cable length and specification from the load devices to the BACK-UP terminal of each inverter should be the same to ensure the same loop impedance, thereby ensuring that the load current shunts to each inverter are nearly equal.
- When the load power is greater than the maximum BACK-UP power of the parallel system, the load needs to be connected to the GRID terminal, not the BACK-UP terminal, for example, the maximum BACK-UP power of one inverter is 12kVA, and the maximum BACK-UP power of six inverters is 72kVA. When the load is greater than the maximum BACK-UP power, the load needs to be connected to the GRID terminal, not the BACK-UP terminal.



Note: A dedicated meter for parallel operation is required (Chint DTSU666 split-phase rail-mounted meter, equipped with 2 CTs). For detailed instructions on parallel operation, please refer to the "ELD Series Parallel Operation Guide" on the EPEVER official website: https://www.epever.com/products/.

3.9 Generator functionality

The generator functionality offers four operation modes: Simulated Grid Mode, Recharge Mode, Smart Load Mode, and AC Coupling Mode. When connecting a generator to the GEN port, the max power from the generator to the inverter is 12KW (Refer to the "Solarman Business APP Instructions Manual" for details of the generator overload protection limit setting).

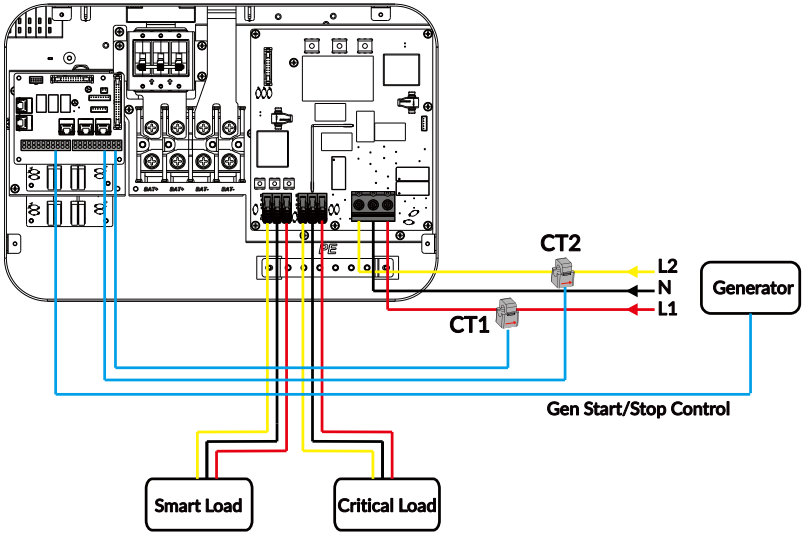
Connecting a generator to the Grid port enables grid simulation function. Only 120/240V split-phase generators are supported. Select "Simulated Grid Mode" in the APP's generator settings and adjust grid over/under-frequency protection limits according to the specifications of the generator; otherwise, inverter faults may occur.

Four types of generator usage are provided as follows according to the operation modes. Besides,

the inverter features a 2-wire start/stop control for generators.

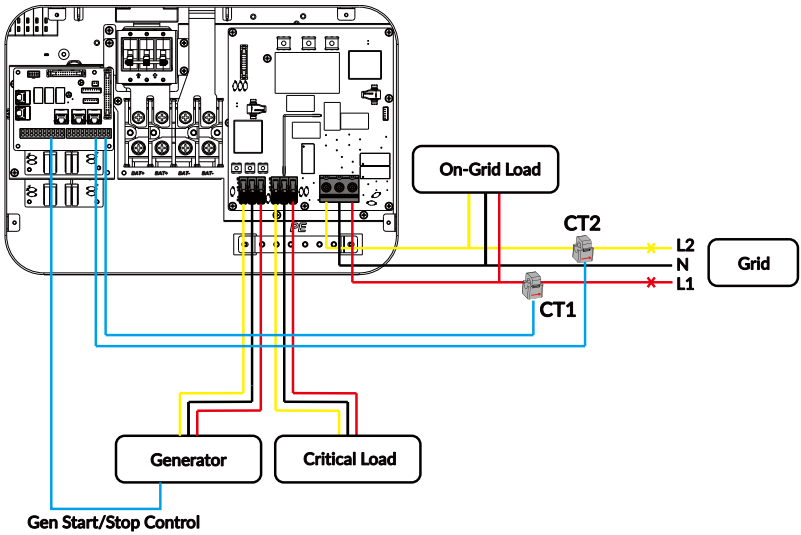
- The wirings for single-inverter system are shown below:

① Generator + Critical Load + Smart Load-- Simulated Grid Mode



In this mode, connect a generator to the Grid port to replace the grid, the generator can supply power to the critical load or smart load. The generator can be started manually, or it can be started and stopped automatically using the dual-line start/stop control function of the inverter. When using this mode, enable the relaxation for Grid ON Voltage Upper Limit, Grid ON Voltage Lower Limit, Grid ON Frequency Upper Limit, Grid ON Frequency Lower Limit, Overvoltage Protection, Undervoltage Protection, Overfrequency Protection and Underfrequency Protection in the grid voltage protection parameters. If CT or meter is connected to the power line between the inverter's grid port and the generator, set the "Meter Enable" or "CT Enable" as “Enable” in the APP; if CT and meter are not connected, set the "Meter Enable" and "CT Enable" as “Disable” in the APP, to avoid the inverter feeding power back to the generator, which may cause generator reverse current protection or even damage.

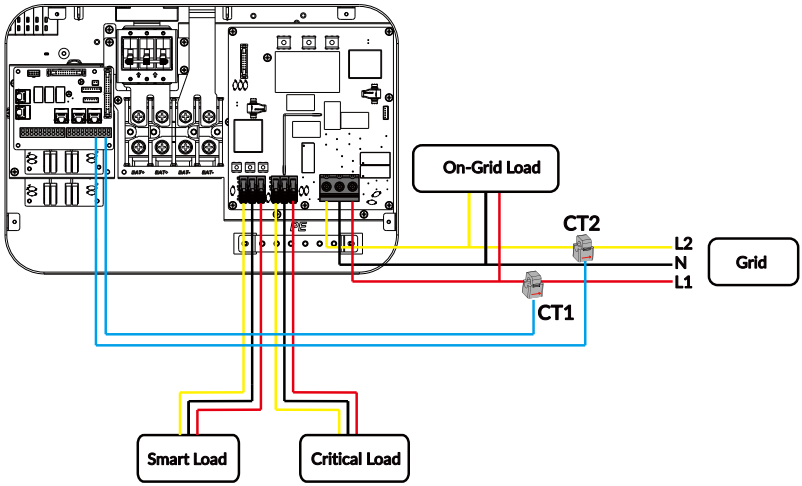
② Generator + Critical Load + On-Grid Load + Grid –– Recharge Mode



This mode is activated when the grid fails and the battery capacity drops to the discharge lower limit. The generator is started to recharge the battery and supply power to the critical loads.

In this mode, connect a generator to the GEN port, and connect the generator's dual-line start/stop control line to the GEN_ST1 and GEN_ST2 dry contacts (PIN5 and PIN6) of the inverter's COM1 port, then the start and stop of the generator can be controlled automatically. It is necessary to set the Overvoltage Protection, Undervoltage Protection, Overfrequency Protection and Underfrequency Protection according to the characteristics of the generator. When a grid fault occurs, if the battery fault or the SOC is lower than the "Start Battery SOC", the generator is started automatically to supply power to critical loads and recharge the battery. In the recharge status, if the battery SOC exceeds the "Stop Battery SOC" or the grid fault is restored, the generator is turned off automatically and switches back to battery emergency power supply or the previously set on-grid hybrid operation mode. The battery charging current is determined by the "Recharge Current Limit" and "Maximum Charging Current Limit". When “Peak Shaving” is enabled, the battery charging and discharging power will be adjusted to ensure the total generator power does not exceed the "Peak Shaving Power".

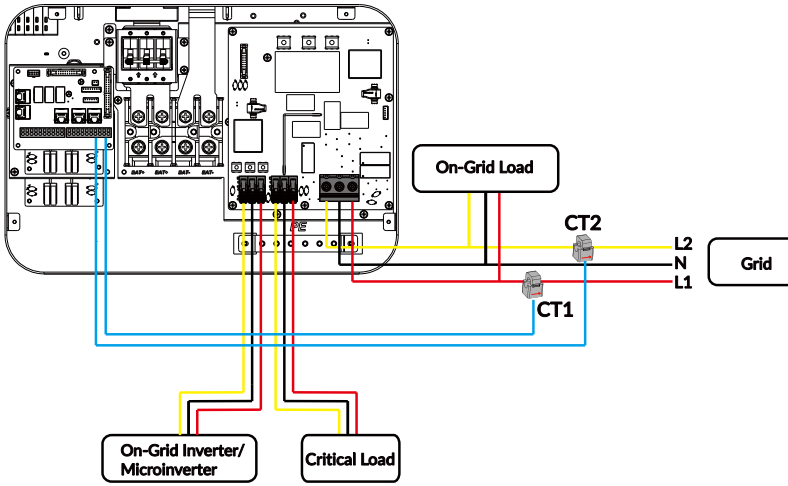
③ Smart Load + Critical Load + On-Grid Load + Grid –– Smart Load Mode



This mode is specifically designed for applications involving smart loads, which are connected to the GEN port. The smart load operates on a priority basis, ensuring that critical loads are powered first. Subsequently, the system determines whether to supply power to the smart load based on the available energy reserves and power distribution capabilities.

The smart load is activated when the lithium battery SOC exceeds the "Start Battery SOC" and the PV power exceeds the "PV Power". The smart load is turned off when the lithium battery SOC is lower than the "Stop Battery SOC" or the PV power is lower than the "PV Power". If “Direct Grid Bypass” is enabled, the smart load is activated when the grid is normal, regardless of the status of the battery and PV. If “Grid Disconnect Off” is enabled, the smart load is turned off when a grid fault occurs, regardless of the status of the battery and PV.

④On-Grid Inverter/Microinverter + Critical Load + On-Grid Load + Grid: AC Coupling Mode



This mode is compatible with on-grid inverters or microinverters to achieve efficient energy utilization. The on-grid inverter or microinverter's port needs to be connected to the GEN port, with the AC coupling mode selected.

In this mode, the maximum connectable power of the on-grid inverter or microinverter is 0.5 times the rated power of the inverter. If the lithium battery SOC is lower than the "Start Battery SOC" and rechargeable, the system will output voltage to the GEN port to start the on-grid inverter or microinverter. When operating off-grid, the on-grid inverter or microinverter needs to support the F-W function. When the output power of the on-grid inverter or microinverter exceeds the sum of the battery charging power and load power of the inverter, the inverter will adjust the frequency to the "AC-Couple Maximum Frequency" to reduce the power output of the microinverter or turn it off. If the lithium battery SOC exceeds the "Stop Battery SOC" or the power sold to the grid exceeds the set feed-in power, the microinverter will be turned off directly.

NOTICE

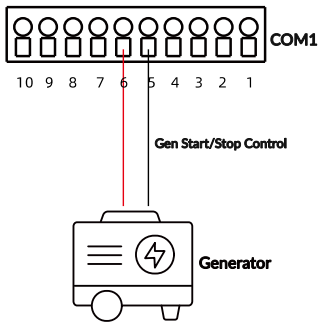
- In the recharge mode, if “Self Diagnostics” is enabled, the generator will be started automatically for a period of time when the set "Week", "Hour" and "minute" are reached, to detect whether the generator status is normal.
- The power of the GEN port exceeds the rated power or the "Overload" in the recharge mode, or the power of the GRID port exceeds the "Overload" in the simulated grid mode, he inverter will shut down for protection.
- In the smart load mode or simulated grid mode, when a smart load is connected to the GEN port, the inverter will automatically start or stop outputting power to the GEN port. The

power of the smart load on the GEN port must not exceed its rated power. The total power of the smart load on the GEN port and the critical load on the BACK-UP port is limited to the rated power, for the peak power and time, please refer to Chapter 8 Technical Specifications – AC Output (Off-grid) – Peak Power, Time.

- Only output voltage of 120/240VAC split-phase generators can be connected to the GEN/GRID port, 120/208VAC 2/3 phase generators are not supported.
- The generator must be equipped with N wire, and the generator PE should be grounded.
- The maximum power from the generator to the inverter is 15KW, and the maximum current is 62.5A. For the detailed parameters, please refer to Chapter 8 Technical Specifications.

- Two-wire Generator Start/Stop Control Function

The inverter features a built-in circuit for controlling the generator's start and stop. For wiring, connect the two generator start/stop control signals to PIN5 and PIN6 of the COM1 terminal on the inverter respectively. After configuring the generator parameters via the APP, the inverter can automatically start and stop the generator. The detailed wiring diagram is shown below:



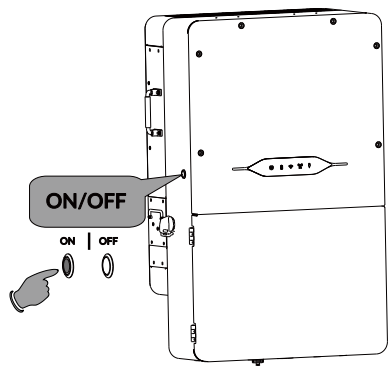
4 Commissioning

4.1 Check before powering on

Please check the following items again before powering on.

- The inverter is securely fixed to the mounting plate.
- The PV cables are securely connected, correctly polarized, and the PV input is within the acceptable voltage range of the inverter.
- The Battery cables are securely connected, correctly polarized, and the battery input is within the acceptable voltage range of the inverter.
- The DC switch is correctly connected between the battery and the inverter, and the DC switch is in the off state.
- The grid and load cables are securely and correctly connected.
- The AC circuit breaker is correctly connected between the inverter grid port and the power grid, and the circuit breaker is disconnected.
- The AC circuit breaker is correctly connected between the inverter load port and the critical load, and the circuit breaker is disconnected.
- For lithium batteries, ensure that the communication cables are properly connected.

4.2 ON/OFF shutdown button



The ON/OFF button is designed on the left side of the inverter casing. Press the button to enable the battery port to work, for battery charging and discharging. When the battery charging and discharging function is not in use, turned off the button to reduce the loss of battery energy. The button stays recessed when the battery side can work normally and pops back out when the battery side cannot work.

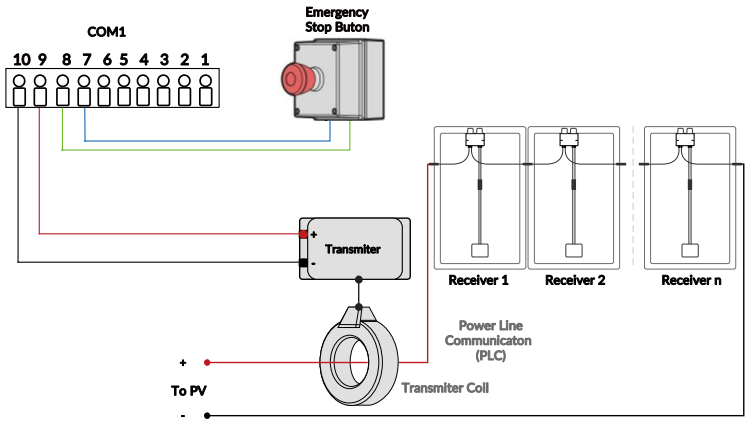
NOTICE

The ON/OFF power button is only allowed to be pressed when the inverter does not require battery connection or not use the battery charging and discharging function.

4.3 RSD rapid shutdown and emergency power off

The emergency shutdown pins (PIN7, PIN8) of COM1 port are normally open contacts, which can trigger a rapid shutdown when closed. The RSD will cut off all power, including the inverter internal power, and stop all AC and DC outputs. The internal power supply (PIN9, PIN10) of the inverter will disconnect the power supply to the RSD transmitter. After pressing the emergency stop button, the RSD transmitter will cut off all input circuits of the solar panels.

- The emergency power off button (normally open) is connected to the PIN7 and PIN8 of COM1 port.
- The RSD transmitter is connected to PIN9 (+) and PIN10 (-) (12VDC power supply).
- Configured the RSD transmitter in the on-grid hybrid inverter may cause interference in the user area.



NOTICE

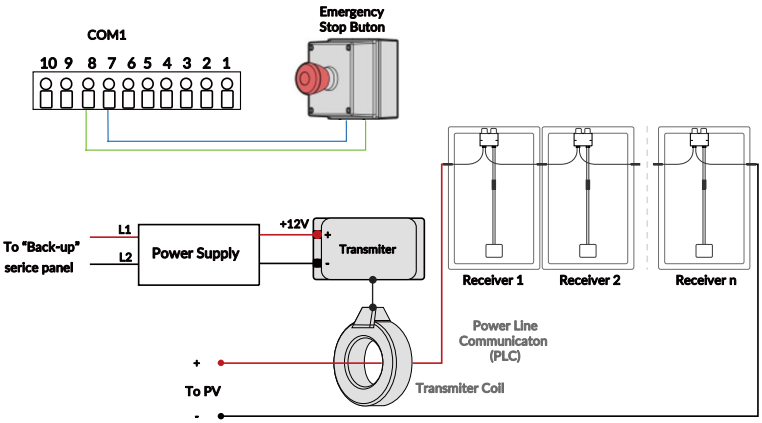
- The rated current of the built-in 12V DC power supply is 100mA (1.2W). Overloading is strictly prohibited.
- If the rated current of the RSD transmitter exceeds 100mA, please contact the manufacturer before installation.
- After the danger is cleared, restore the emergency stop switch button to its normally open state before restarting the inverter. Otherwise, it won't return to normal operation.

When the rated current of the RSD transmitter exceeds 100mA, an external power converter is needed to power the RSD transmitter. The input of the power converter is connected to the Back-up port of the distribution box. Once the emergency stop button is pressed, all outputs including power to the Back-up port will be shut down. And then, the RSD transmitter will be immediately turned off.

Recommended RSD transmitter model: APsmart Transmitter-PLC 406001

Recommended PV rapid shutdown (receiver) model: RSD-S-PLC

Note: Please select the PV rapid shutdown switch (receiver) based on the actual PV panel model used.



4.4 Initial power on (Important)

Please follow the steps below to turn on the inverter:

Step 1: Turn on the PV DC switch.

Step 2: Connect the DC circuit breaker of the inverter's internal battery port.

Step 3: Turn on the battery as the battery startup instructions.

Step 4: Press the inverter's ON/OFF button to enable the battery to work.

Step 5: Connect the AC circuit breaker between the inverter grid port and the power grid.

Step 6: Connect the AC circuit breaker between the inverter load port and the critical load.

Step 7: Complete the inverter power-on.

Step 8: Set inverter parameters via the APP to ensure it is working normally. Refer to the "Solarman Business APP Instructions Manual" for specific configurations.

(1) Select **Safety Code**.

(2) Select **Grid Type.**

(3) Select **PV Input Mode** ("Independent" mode by default).

(4) Select **Operation Mode** ("Self Consumption" by default).

(5) Open the APP, input **Battery Protocol** and set battery parameters on the Battery Configuration interface.

(6) Remote turn on/off: The inverter is in the shutdown state by default. Select **Remote Switching** as **ON**, and click **Deliver**, then the inverter is operating after turned on.

4.5 AFCI setup

Causes for arc generation:

- Damage to connectors in PV or battery systems.
- Improper cable connection or breakage.
- Aging of connectors and cables.

Methods for detecting arcs:

- The inverter integrates AFCI function and complies with UL1699B.
- When the inverter detects an arc, the user can view the APP to find the arc fault history.
- The inverter will shut down for protection until the AFCI fault is removed. After the AFCI fault is removed, the inverter can automatically reconnect to the grid.
  - Automatic re-connection: If the fault is triggered less than 5 times within 24 hours, the inverter will automatically remove the fault within 6 minutes.
  - Manual re-connection: When the fifth arc fault occurs within 24 hours, the inverter will shut down. Users can remove the faults through the APP, or restart the system after powering off. After the inverter removes the fault, it will reconnect to the grid and operate.

By default, the AFCI function is disabled and can be enabled through the APP.

AFCI operation steps:

Step 1: Open the parameter setting of the APP and find the AFCI module setting.

Step 2: Read the AFCI parameter values.

Step 3: Enable the AFCI module.

4.6 APP settings

Add the WiFi adapter and the connected device to the cloud server by website (https://cnpro.solarmanpv.com/login) or APP. Then you will be able to monitor the device and set parameters by PC or APP.

Note: For the details of APP setting, please refer to the "Solarman Business APP Instructions Manual" on the EPEVER official website: https://www.epever.com/products/.

5 Troubleshooting and Maintenance

5.1 Inverter powering off

Please follow the steps below to power off the inverter:

Step 1: Disconnect the inverter grid AC breaker.

Step 2: Disconnect the inverter back-up AC breaker.

Step 3: Disconnect the DC breaker of the inverter's internal battery port.

Step 4: Turn off the PV DC switch of the inverter.

5.2 Inverter dismantling

Please follow the steps below to dismantle the inverter:

Step 1: Disconnect all electrical connections of the inverter, including: DC lines, AC lines, communication lines, communication modules, and protective ground lines.

Step 2: Remove the inverter from the mounting plate.

Step 3: Dismantle the mounting plate.

Step 4: Properly store the inverter. If the inverter is to be reused in the future, ensure that storage conditions meet the requirements.

5.3 Inverter disposal

When the inverter can no longer be used and needs to be discarded, please dispose of the inverter in accordance with the electrical waste disposal requirements specified by the current country/region. The inverter should not be treated as household waste.

5.4 Routine maintenance

Inverters generally require no maintenance or calibration, but it is important to ensure that the heat sinks are not covered by dust, dirt, or other debris.

- Clean inverter

Please clean the inverter using an electric compressed air blower, a dry soft cloth, or a soft-bristled brush. Do not use water, corrosive chemicals, cleaning agents, or strong detergents to clean the inverter.

- Clean heat sink

To ensure the normal function and long-term use of the inverter, it is crucial to maintain sufficient airflow space around the heat sink. No obstructions to airflow, such as dust or snow, should be present around the heat sink and must be removed. Clean the heat sink using compressed air, a soft

cloth, or a soft brush. Do not use water, corrosive chemicals, detergents, or strong cleaning agents to clean the heat sink.

5.5 External fan maintenance

Before maintenance, ensure the inverter is powered off.

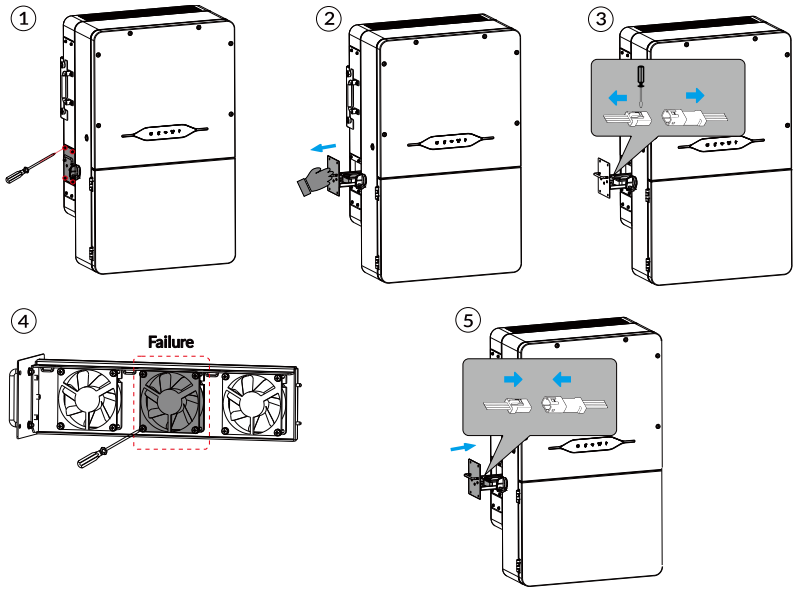
Step 1: Remove the 4 screws of the external fan insert frame.

Step 2: Pull out the external fan insert frame gently, do not use excessive force.

Step 3: Disconnect the fan's connecting wires.

Step 4: Replace the faulty fan and resecure the wires.

Step 5: Reinstall the external fan insert frame and reconnect the fan wires.



6 Protections

No.	Protections	Description
1	PV limit current/power	When the PV output current/power exceeds the PV maximum input current/power of the on-grid hybrid inverter, the inverter will obtain energy from the PV array at its maximum allowable input current/power. When the input voltage of the PV array is 90V ≤ Vin < (Pmax per string/20A)V, the PV input power of the on-grid hybrid inverter decreases as the input voltage decreases. When the input voltage of the PV array is (Pmax per string/20A)V ≤ Vin < 450V, the inverter supports a maximum PV input power of up to 1.5 times the rated power. **Note:** Pmax per string is calculated by dividing the maximum PV input power by the number of corresponding MPPTs.
2	PV short circuit	When the PV is not charging, a short circuit in the PV array will not damage the inverter.
3	PV reverse polarity	In case of PV reverse polarity, the inverter will not be damaged and will resume operation after correcting the wiring error.
4	Grid input overvoltage	When the grid voltage exceeds the "Grid ON Voltage Upper Limit", "Grid Reconnect Voltage Upper Limit", "Grid Level 1 Overvoltage Protection" and "Grid Level 2 Overvoltage Protection", the grid relay will disconnect, and bypass output will stop. For UL1741 on-grid standard, both "Grid ON Voltage Lower Limit" and "Grid Reconnect Voltage Lower Limit" is 126V, "Grid Level 1 Overvoltage Protection" is 132V, and "Grid Level 2 Overvoltage Protection" is 144V.
5	Grid input undervoltage	When the grid voltage is lower than the "Grid ON Voltage Lower Limit", "Grid Reconnect Voltage Lower Limit", "Grid Level 1 Undervoltage Protection" and "Grid Level 2 Undervoltage Protection", the grid relay will disconnect, and bypass output will stop. For UL1741 on-grid standard, both "Grid ON Voltage Lower Limit" and "Grid Reconnect Voltage Lower Limit" is 110V, "Grid Level 1 Undervoltage Protection" is 105.6V, and "Grid Level 2 Undervoltage Protection" is 60V.
6	Battery overvoltage	When the battery voltage goes higher than the "Overvoltage

		Protection" of the "Battery Parameters", the inverter will stop the battery charging and discharging. (The "Overvoltage Protection" is directly read from the lithium battery's BMS information, and it can only be configured when the "Battery Protocol" is set to "0".)
7	Battery over discharge	When the battery voltage does not exceed the "Lowest Discharge Voltage", or the lithium battery SOC does not exceed 1 minus "Off-grid Maximum Discharged Energy" during off-grid operation, or the lithium battery SOC does not exceed 1 minus "On-grid Maximum Discharged Energy" during grid operation, or the lithium battery BMS prohibits discharge, the battery discharge will be stopped, and forced charging will be initiated. The power output of the BACK-UP port will be disconnected during off-grid operation. When the battery voltage exceeds the "Lowest Discharge Voltage" plus 5V, and the lithium battery SOC exceeds 1 minus "Off-grid Maximum Discharged Energy" plus "Battery Discharge Return Difference" during off-grid operation, and the lithium battery SOC is not lower than 1 minus "On-grid Maximum Discharged Energy" plus 4% during grid operation, the normal battery charging and discharging will be restored.
8	Output short circuit (off-grid)	In the event of a short circuit at the off-grid output port, the inverter will trigger short-circuit protection and automatically restore output after a delay (5 seconds after fault detection). Promptly address any faults, as prolonged short circuits may cause permanent damage to the inverter.
9	Inverter overload (off-grid)	For the off-grid peak power and time of specific models, please refer to Chapter 8 Technical Specifications. **Note:** The output is recovered automatically after a delay time of 120s. The inverter stops working after the 4th protection and can resume working after resetting or restarting.
10	On-grid PEN short circuit detection function	If the "Grid PEN Bonding Detection" is enabled in the APP, but the PE-N terminals are not shorted in distribution box, a fault code 82 will be triggered upon the first power-on. Cut off all power supplies on both the DC side and AC side of the inverter, properly short-circuit the PE-N terminals in the distribution box, and then power on the inverter again.

7 Troubleshooting

Verify the fault cause by checking the status of the inverter indicators (refer to Subsection 1.2.2 Indicators for fault cause identification); or access the alarm information within the APP. On the APP's main screen, select "Site > Device List", click on a device to access its relevant information page, and then click "Alarm Messages" to view the fault details. Then, refer to the error information and solutions provided in the table below to try to resolve the fault.

If the inverter LED or APP does not display any error information, please refer to the following to see if the current installation status meets the requirements for the inverter to work properly. If not, make the right adjustments and then check if the fault has been solved.

- Check whether the inverter is installed in a clean, dry and well-ventilated location. Dampness and poor ventilation may cause adverse effects on the operation of the device.
- Check whether the DC switch is disconnected. If it is disconnected, it may affect the normal start-up and operation of the device.
- Check whether the cross-section and length of the cable meet the requirements. Inappropriate cable specifications may lead to abnormal current transmission and thus trigger faults.
- Check whether the input, output connections and wiring are in good condition to ensure that there are no loose connections, short circuits, etc., and to guarantee stable and reliable circuit connections.
- For specific installations by users, confirm whether the configuration settings are correct. Incorrect configurations may prevent the inverter from operating as expected.
- Check whether the display panel and communication cable are correctly connected and undamaged. If the connection is improper or the cable is damaged, it may result in the inability to display or transmit information normally.

If you still need assistance after above operations, please contact the after-sales service center.

The error information and solutions are as follows:

ID	Failure	Solution
1	GridOVP (Grid Overvoltage)	If it occurs occasionally, it may be occasional abnormalities in the power grid. After the power grid returns to normal, the inverter will automatically resume working.
2	GridUVP (Grid Undervoltage)	If it occurs frequently, check whether the grid voltage/frequency is within the specified range of the

3	VGridLineFault (Grid Line Voltage Error)	inverter. - If the grid voltage/frequency is within the specified range of the inverter, check the inverter's AC circuit breaker and AC wiring. - If the grid voltage/frequency is not within specified range and the AC wiring is correct, but there are still multiple alarms, contact technical support to adjust the grid over/under-voltage and over/under-frequency protection values.
4	GridOFP (Grid Over Frequency)	
5	GridUFP (Grid Under Frequency)	
6	OVRT (Overvoltage Ride Through Error)	This is an internal fault of the inverter. Please turn off the inverter, and then turn it back on after waiting for 5 minutes to check if the fault disappears. If the issue remains unresolved, please contact our technical support.
7	LVRT (Low Voltage Ride Through Error)	
8	IslandFault (Island Fault)	
11	LineSequenceError (Wire Sequence Error)	When multiple inverters operate in parallel, check whether the wire sequence of the grid or generator interface (L1/L2/N) between the master and slave units is reversed.
17	GEN_OVP (Generator Overvoltage)	Check whether the generator is working normally.
18	GEN_UVP (Generator Undervoltage)	
19	GEN_OFP (Generator Over Frequency)	
20	GEN_UFP (Generator Under Frequency)	
21	GEN_OverLoad (Generator Overload)	
22	GEN_RefluxOverLoad (Generator Anti-reflux Overload)	
23	Overload1	This is an internal fault of the inverter. Please turn off

24	Overload2	the inverter, and then turn it back on after waiting for 5 minutes to check if the fault disappears. If the issue remains unresolved, please contact our technical support.
25	Overload3	
26	InvVoltFault (Inverter Voltage Fault)	
27	SwInvInstantOVP (Inverter Peak Overvoltage)	
28	SwAcRmsOCP (Inverter RMS Over Current)	
29	SwAcOCPInstant (Inverter Peak Over Current)	
30	HwAcOCP (Inverter Hardware Over Current)	
31	IacUnbalance (Inverter Current Unbalance)	
32	DciOCP (Inverter DC Component Over Current)	
33	HwADFaultVAC (AC Side Voltage Reference Error)	
34	HwADFaultIAC (AC Side Current Reference Error)	This is an internal fault of the inverter. Please turn off the inverter, and then turn it back on after waiting for 5 minutes to check if the fault disappears. If the issue remains unresolved, please contact our technical support.
35	HwADFaultIdc (DC Side Current Reference Error)	
36	HwADFaultDCV (Inverter Voltage DC Component Reference Error)	
37	HwADFaultDCI (Inverter Current DC Component Reference Error)	
38	HwADFaultVGrid_Slave (Slave Chip Grid Voltage Reference Error)	

39	GFCIDeviceFault_Slave (Slave Chip Leakage Current Sampling Error)	
40	ConsistentFault_Vgrid (Grid Voltage Inconsistency)	
41	ConsistentFault_DCI (Inverter Current DC Component Inconsistency)	
42	ConsistentFault_GFCI (Leakage Current Inconsistency)	
43	GFCIDeviceFault (Leakage Current Sampling Error)	
44	GFCI (Leakage Current Fault)	
45	CTDisconnect (CT Current Error)	Check whether the CT connection is correct.
46	SwGridRmsOCP (Grid RMS Over Current)	This is an internal fault of the inverter. Please turn off the inverter, and then turn it back on after waiting for 5 minutes to check if the fault disappears. If the issue remains unresolved, please contact our technical support.
47	RefluxOverLoad (Anti-backfeeding Overload)	
48	RelayFail (Bypass Relay Error)	
49	SwBusOVP (Bus Average Overvoltage)	
50	SwBusInstantOVP (Bus Peak Overvoltage)	
51	HwBusOVP (Bus Hardware Overvoltage)	

52	BusUVP (Bus Undervoltage During Grid Connection)	
53	BusZVP (Bus Low Voltage)	
54	VbusRmsUnbalance (Bus RMS Voltage Unbalance)	
55	VbusInstantUnbalance (Bus Instantaneous Voltage Unbalance)	
57	SwSplitOCPInstant (Software Split Instantaneous Overcurrent Protection)	
58	HwSplitNOCP (Hardware Split Overcurrent Protection)	
59	LLCBusOVP (LLC Bus Over Voltage)	
60	HwLLCBusOVP (LLC Bus Hardware Over Voltage)	
61	HwFault (Hareware Fault)	
65	BatOVP (Battery Overvoltage)	Check whether the battery voltage is too high.
66	BatLowVoltage (Battery Low Voltage)	Check whether the battery voltage or SOC is too low.
67	SwBatOCP (Battery Over Current)	Check whether the inverter is working overload.
68	HwBatOCP (Battery Hardware Over Current)	This is an internal fault of the inverter. Please turn off the inverter, and then turn it back on after waiting for 5 minutes to check if the fault disappears. If the issue remains unresolved, please contact our technical support.
69	SwBuckBoostOCP (BuckBoost Peak Over Current)	
70	HwBuckBoostOCP (BuckBoost Hardware Over Current)	

73	PvOVP (PV Overvoltage)	
74	SwPvOCPInstant (PV Peak Over Current)	
75	HwPVOCP (PV Hardware Over Current)	
76	IpvUnbalance (PV Current Unbalance)	
77	PVConfigError (PV Mode Settings Error)	Check the setting of the PV input mode (parallel/single mode). Modify the settings if it is not corresponding to the actual PV input method.
81	IsoFault (Insulation Resistance)	Check the insulation resistance between the PV array and ground (earth). If a short circuit occurs, repair the fault in time.
82	PEConnectFault (Grounding Error)	1. Check the grounding of the PE line for the AC output. 2. Check whether the grid-side PE and N lines are bonded in the distribution box.
83	AFCIFault (AFCI Fault)	Check the PV input wiring for any loose connections or arcing.
84	AFCIDeviceFault (AFCI Module Fault)	This is an internal fault of the inverter. Please turn off the inverter, and then turn it back on after waiting for 5 minutes to check if the fault disappears. If the issue remains unresolved, please contact our technical support.
85	HwAuxPowerFault (Hardware Auxiliary Power Fault)	
89	SpiCommFault_DC (SPI Communication Error (DC))	
90	Internal-DSP Comm Fault (Internal DSP Communication Fault)	
91	SChip_Fault (Slave Chip Error)	

92	MChip_Fault (Master Chip Error)	
93	SciCommLose (SCI Communication Error)	
94	MeterCommLose (Electric Meter Communication Fault)	Check whether the communication cable of the electric meter is properly connected.
95	AFCICommFault (AFCI Communication Fault)	This is an internal fault of the inverter. Please turn off the inverter, and then turn it back on after waiting for 5 minutes to check if the fault disappears. If the issue remains unresolved, please contact our technical support.
96	ParallelFault (Parallel Error)	1. Check whether the parallel system has only one master unit (and whether each phase in the three phase system has only one master unit). 2. Check whether there are duplicate address settings. 3. Check whether the parallel connection cables and terminal resistors are properly connected.
97	FanFault1 (Fan 1 Fault)	Check whether the external fan of the inverter is working normally.
98	TempFault_Env1 (Ambient Temperature Over Temperature 1)	Ensure the inverter is installed in a cool, well-ventilated area (do not install the inverter in direct sunlight).
99	TempFault_Env2 (Ambient Temperature Over Temperature 2)	
100	TempFault_Inv1 (Module 1 Over Temperature)	
101	TempFault_Inv2 (Module 2 Over Temperature)	
102	TempFault_Inv3 (Module 3 Over Temperature)	

103	FanFault2 (Fan 2 Fault)	Check whether the internal fan of the inverter is working normally.
104	NTCSampleFault (NTC Sample Abnormality)	In the event of an internal inverter fault, please power down the inverter and allow a 5-minute interval before restarting it. Verify whether the issue has been resolved. If the issue remains unresolved, please contact our technical support.
105	TempFault_Bat (Battery Over Temperature)	Ensure the inverter is installed in a cool, well-ventilated area (do not install the inverter in direct sunlight).
106	TempFault_HeatSink1 (Heat Sink 1 Over Temperature)	
107	TempFault_HeatSink2 (Heat Sink 2 Over Temperature)	
113	VoltDerating (Voltage Derating)	Ensure the grid voltage and frequency are within the specified range of the inverter.
114	VoltLoading (Voltage Loading)	
115	FreqDerating (Frequency Derating)	
116	FreqLoading (Frequency Loading)	
117	OverTempDerating (Over Temperature Derating)	Ensure the inverter is installed in a cool, well-ventilated area (do not install the inverter in direct sunlight).
118	BatLowVoltageAlarm (Battery Low Voltage Alarm)	Check whether the battery voltage is too low.
119	ReversalConnection (PV Input Reverse Connection Alarm)	Check whether the positive and negative poles of the PV input cable are reversed.
121	GenSeltTestAbnormal (Generator Self-test Abnormality)	Check whether the wiring between the generator and dry contact is abnormal, and whether the generator can work normally.

122	ParalleComFault (Parallel Communication Fault Alarm)	Check whether the parallel connection cables and terminal resistors are properly connected.
123	Phase abnormal	1. For 120/240V grid, check whether the phase difference between two phase voltages of the grid or generator is 180 degree. 2. For 120/208V grid, check whether the phase difference between two phase voltages of the grid or generator is 120 degree. 3. Check whether the phase settings of the three phase system are abnormal. 4. Check whether any other faults occur in the single unit of each phase in the three phase system, which may cause phase loss of the system.
125	Current unbalance in three phase	After enabling the unbalanced support in the three phase system, the current difference between the outputs of any two phases exceeds the set value of "Unbalance Current Value". Ensure that the current difference between the outputs of any two phases does not exceed the set value of "Unbalance Current Value", or increase the set value of "Unbalance Current Value", or select "Disable unbalanced support".
128	Current sharing abnormal	Check whether the outputs of all parallel-connected devices in the system are correctly connected together. Ensure that all the output circuit breakers of the parallel-connected devices are closed.
129	unrecoverPvConfigError (PV Mode Settings Permanent Fault)	This is an internal fault of the inverter. Please turn off the inverter, and then turn it back on after waiting for 5 minutes to check if the fault disappears. If the issue remains unresolved, please contact our technical support.
130	unrecoverPVOCPInstant (PV Over Current Permanent Fault)	
131	unrecoverHwPVOCP (Hardware PV Over Current Permanent Fault)	
132	unrecoverRelayFail (Grid Relay Permanent Fault)	

133	unrecoverVbusUnbalance (Bus Unbalance Permanent Fault)	
134	unrecoverOverLoad (Overload Permanent Fault)	
135	unrecoverLLC_OCP (LLC Hardware Over Current Permanent Fault)	
137	unrecoverHwAcOCP (Hardware Inverter Over Current Permanent Fault)	
138	unrecoverBusOVP (Bus Overvoltage Permanent Fault)	
139	unrecoverHwBusOVP (Bus Hardware Over Voltage Permanent Fault)	
140	unrecoverIpvUnbalance (PV Current Unbalance Permanent Fault)	
141	unrecoverEPSBatOCP (EPS Battery Over Current Permanent Fault)	
142	unrecoverAcOCPInstant (Inverter Peak Over Current Permanent Fault)	
143	unrecoverIacUnbalance (AC Current Unbalance Permanent Fault)	
144	unrecoverAFCIFault (AFCI Permanent Fault)	
145	BMS OVP (BMS Overvoltage Protection)	This is an internal fault of the lithium battery. Please turn off the inverter and lithium battery, and then turn them back on after waiting for 5 minutes to

146	BMS UVP (BMS Undervoltage Protection)	check if the fault disappears. If the issue remains unresolved, please contact our technical support.
147	BMS OTP (BMS High Temperature Protection)	
148	BMS UTP (BMS Low Temperature Protection)	
149	BMS OCP (BMS Charging/Discharging Over Current)	
150	BMS Short (BMS Short Circuit Protection)	
151	BMS Slave Abnormal	
161	ARM update Fail (ARM Update Failed)	If the upgrade fails, make multiple times of plugging and unplugging or perform a re-upgrade after powering on. If the issue remains unresolved, please contact our technical support.
162	DSP-M update Fail (Master DSP Update Failed)	
163	DSP-S update Fail (Slave DSP Update Failed)	
164	BMSLink update Fail (BMSLink Update Failed)	
171	Drms0Shutdown (Drms0 Shutdown)	The inverter is shut down via Drms0.
177	USBFault (USB Fault)	Check the inverter USB port.
178	WifiFault (WiFi Fault)	Check the WiFi connection of the inverter.
181	EEPROMFault (EEPROM Error)	This is an internal fault of the inverter. Please turn off the inverter, and then turn it back on after waiting for 5 minutes to check if the fault disappears. If the issue remains unresolved, please contact our
184	SafetyVerFault (Safety Version Error)	

185	ARM_S_DSP Comm Fault (ARM and Slave DSP Communication Fault)	technical support.
186	ARM_M_DSP Comm Fault (ARM and Master DSP Communication Fault)	
189	BMSCommFault (Battery Communication Fault)	Ensure that the batteries you use are compatible with the inverter. CAN communication is recommended. Check for any faults in the communication cables or ports between the battery and inverter.
190	RsdFault (RSD Fault)	Check whether fast shutdown occurs.

8 Technical Specifications

Parameters	ELD6K	ELD8K	ELD10K	ELD12K	ELD15K
Battery (DC)					
Battery Type	Lithium battery/Lead-acid battery				
Voltage Range	40V–60V				
Charging Rule	BMS command or 3-stage charging				
Maximum Charging and Discharging Current	140A	185A	240A	275A	275A
PV Input (DC)					
Maximum Input Power	9,000W	12,000W	15,000W	18,000W	22,500W
Maximum Input Voltage(1)	500V				
Start-up Voltage	100V				
Rated Input Voltage	300V				
Maximum Input Current per MPPT	20A				
MPPT Voltage Range	90V–450V				
Number of MPPTs	2	3	4	4	4
Number of Strings per MPPT	1				
Generator Input (AC)					
Rated Input Power	6,000W	8,000W	10,000W	12,000W	15,000W
Rated Input Current	25A	33.3A	41.6A	50A	62.5A
Rated Input Voltage	L1/L2/N/PE 120/240VAC				
Rated Input Frequency	50/60Hz				
AC Output (On-grid)					
Maximum Output Apparent Power	6,000VA	8,000VA	10,000 VA	12,000 VA	15,000 VA

Maximum Output Current	25A	33.3A	41.6A	50A	62.5A
Maximum Input Current From Grid	50A	66.6A	80A	80A	80A
Rated Grid Voltage	L1/L2/N/PE 120/240VAC (208VAC 2/3 phase)				
Rated Grid Frequency	50/60Hz				
THDi	< 3%				
Power Factor	0.99 (±0.8)				
AC Output (Off-grid)					
Rated Output Power	6,000W	8,000W	10,000W	12,000W	15,000W
Peak Power, Time	2 * Rated Power (VA), 10s				1.5* Rated Power (VA), 10s
Rated Output Current	25A	33.3A	41.6A	50A	62.5A
Rated Output Voltage	L1/L2/N/PE 120/240VAC (208VAC 2/3 phase)				
Rated Output Frequency	50/60Hz				
THDu (@Linear Loads)	< 3%				
Switch Time	< 10ms				
Efficiency					
Maximum Efficiency	97.26%				
Maximum Discharging Efficiency	96.57%				
Protection					
Basic Protection	PV reverse polarity/insulation resistance/ overcurrent/overvoltage/over temperature/ anti-islanding/leakage current protection				
AFCI	Optional				
DC Switch	Included				
SPD	DC Type II/AC Type III				

Rapid Shutdown (RSD)	Optional
Environmental Parameters	
Operating Temperature	-25℃ to +60℃ (> 45℃ derating)
Relative Humidity	5% to 95% (N.C.)
Altitude	4,000 meters (> 2,000 meters derating)
Ingress Protection	3R
Noise Emission	< 60dB
Mechanical Parameters	
Dimensions (L × W × H)	840mm × 513mm × 283mm
Weight	53kg
Others	
Generator Auto Start-up	2 Wire Start
Standby Losses	< 30W
Topology	Non-Isolation
Cooling Method	Intelligent air-cooled heat dissipation
Mounting Method	Wall Mounted
Communication with BMS	RS485/CAN
Communication with Meter	RS485
Communication with Portal	WiFi/Bluetooth (External)
Display	LED/LCD & APP

(1) The maximum input voltage refers to the voltage at an ambient temperature of -25℃.

9 Technical Support

For technical inquiries regarding our products, please contact us through the following channels:

Service Hotline: 010-82894896/82894112

0752-3889706

0755-89236770

Email: support@epever.com

For more product information, please visit: www.epever.com.

APP Download:

Any changes without prior notice! Version number: V1.0

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