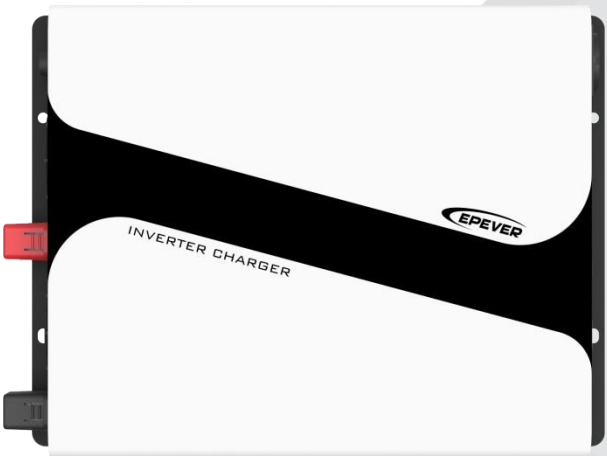
USER MANUAL



Inverter Charger

ICR1012, ICR2012, ICR3012

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 environment (Do not place flammable or explosive objects around the inverter, or install the inverter on the heat-intolerant buildings or under the direct sunlight).
- The actual current/voltage/power exceeds the limit value of the inverter charger.
- Damage caused by working temperature exceeding the rated range.
- Electric arc, fire, explosion, and other accidents caused by failure to follow the inverter charger labels or manual instructions.
- Unauthorized disassembly and maintenance of the inverter charger.
- Damage caused by force majeure.
- Damage occurred during transportation or loading/unloading the inverter charger.

Scope of application

This manual contains all the safety, installation, and operation instructions for the ICR series Inverter Charger (hereinafter referred to as “inverter charger”). The ICR series includes the following product model:

ICR1012, ICR2012, ICR3012

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. Please read this manual carefully to understand the safety information and familiarize yourself with the product's features before using the product.

Symbol definition

To ensure the user's personal and property safety while using this product, relevant information is provided in the manual and highlighted with the following symbols. Please read the relevant texts carefully when you encounter the following symbols in the manual.

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

1. Requirements for professional and technical personnel

- Professionally trained.
- Familiar with related safety regulations of the electrical system.
- Read this manual carefully and master the related safety precautions.

2. Operations for professional and technical personnel

- Install the inverter charger to a specified position.
- Conduct trial operations for the inverter charger.
- Operate and maintain the inverter charger.

3. Safety cautions before installation

⚠ DANGER

- When installing the inverter charger, please evaluate whether there is a risk of electric arc in the operation area.
- Keep the inverter out of reach of children.

NOTICE

- After receiving the inverter charger, please check if there is any damage during transportation. If you find any problem, please contact the transportation company, our local distributor or our company in time.
- When placing or moving the inverter charger, please follow the instructions in the manual.

4. Safety precautions for mechanical installation

⚠ DANGER

Before installation, confirm the inverter charger has no electrical connection.

NOTICE

Ensure enough heat dissipation space for the inverter charger before installation. Do not install the inverter charger in humid, salt spray, corrosion, greasy, flammable, explosive, dust accumulative, or other severe environments.

5. Safety precautions for electrical connection

DANGER

- Both the utility input and AC output are of high voltage, do not touch the wiring to avoid electric shock.
- Do not put the inverter charger close to the flooded lead-acid battery; because the spark in the terminals may ignite the hydrogen released by the battery.
- When the AC output terminal connects to the load, the inverter charger needs to stop working.

WARNING

- Ensure all wirings are secure to prevent overheating due to loose connections.
- The inverter charger shell should be connected to the ground, and the cross-sectional area of the wire connecting the ground terminal to the earth should not be less than $4mm^2$.
- A fast-acting fuse or breaker should be used between battery and inverter charger; whose rated current should be twice of the inverter charger rated input current.

NOTICE

- Do not connect the AC output terminal to other power sources or utility. Otherwise, the inverter charger will be damaged.
- It is strictly forbidden to connect a transformer or a load with a surge power (VA) exceeding the overload power at the AC output port. Otherwise, the damage will be caused to the inverter charger.

6. Safety precautions for inverter charger operation

WARNING

- The inverter charger generates much heat during operation with a high cabinet temperature. Do not touch the unit and keep it far away from the materials and devices that are sensitive to high temperature.
- When the inverter charger is working, do not open the inverter charger shell for any operation.
- When eliminating the fault that affects the safety performance of the inverter charger, disconnect the DC input circuit breaker, disconnect the AC output circuit breaker, turn off the inverter charger switch and operate it after the LCD is completely OFF.

7. Dangerous operations causing an electric arc, fire, or explosion

- Touch the uninsulated ends of potentially live cables.
- Touch the wiring copper busbars, terminals or internal components of the inverter charger that might be electriferous.
- Loose connection of power cables.
- Accidental dropping of screws or other components inside the inverter charger.
- Improper operations by untrained non-professional or technical personnel.

⚠ DANGER

Once an accident occurs, it must be handled by professionals. Improper operation would cause a more serious accident.

8. Precautions for stopping the inverter charger

- Turn off the AC output and disconnect the utility input breakers. Then, turn off the DC switch.
- After the input and output wires are disconnected for ten minutes, the internal conductive modules could be touched.
- The inverter charger does not contain repair parts internally. If maintenance service is required, please get in touch with our after-sales service personnel.

⚠ DANGER

Do not touch or open the shell after the inverter charger is powered off within ten minutes.

9. Precautions for inverter charger maintenance

- It is recommended to test the inverter charger with testing equipment to ensure there is no voltage at the input and output terminals or no current on the input and output cables.
- When conducting the electrical connection and maintenance, post a temporary warning sign or put up barriers to prevent unrelated personnel from entering the electrical connection or maintenance area.
- Improper maintenance operation to the inverter charger may cause personal injury or equipment damage;
- It is recommended to wear an antistatic wrist strap or avoid unnecessary contact with the circuit board.

⚠ CAUTION

The safety mark, warning label and rating plate on the inverter charger should be clearly visible, not removed or covered.

10. Working environment

- Ambient temperature: -20℃ to +65℃
- Storage temperature: -25℃ to +70℃ (No sharp temperature changing)
- Relative humidity: < 95% (Non-condensing)
- Altitude: < 4,000m (If the altitude exceeds 2,000 meters, the actual output power is reduced appropriately.)

NOTICE

The inverter charger is strictly prohibited from being used in the following places. The company shall not assume any liability for damages caused by its use in inappropriate locations:

- Do not install the inverter charger in harsh environments, including those with high humidity, salt spray, corrosion, grease, flammable or explosive materials, or excessive dust accumulation. When installing it outdoors, avoid direct sunlight and rainwater infiltration.
- Do not install the inverter charger and lead-acid liquid batteries in a sealed space. The batteries produce combustible gases, and a spark at the connection terminals may cause a fire.

1 General Information

1.1 Product overview

The ICR series inverter charger is a next-generation integrated power supply specifically engineered for RV systems. It seamlessly integrates three core functions: shore power charging, shore power AC pass-through (bypass mode), and independent inverter output. This unit features advanced intelligent management, dynamically adjusting charging current and managing loads based on real-time vehicle operating conditions and system configurations. Key characteristics include a compact size, robust load-handling capability, and sophisticated control features.

The DSP chip in the product with an advanced control algorithm brings high response speed and conversion efficiency. In addition, this product adopts an industrial design to ensure high reliability and features multiple charging and output modes.

The product adopts the Three-stage charging method (Bulk Charging, Constant Charging, and Float Charging) to ensure battery safety. The communication interface with the standard Modbus protocol allows end-users to expand their applications and is suitable for different monitoring requirements.

This integrated device comprises an AC-DC charging unit utilizing fully digital control with Power Factor Correction (PFC) and dual voltage-current closed-loop control to achieve an input power factor (PF) approaching unity (PF ≈ 1), combined with a DC-AC inverter unit employing fully digital SPWM technology to convert DC power to pure sine wave AC output, designed for powering various AC loads including household appliances, power tools, industrial equipment, and electronic/AV systems.

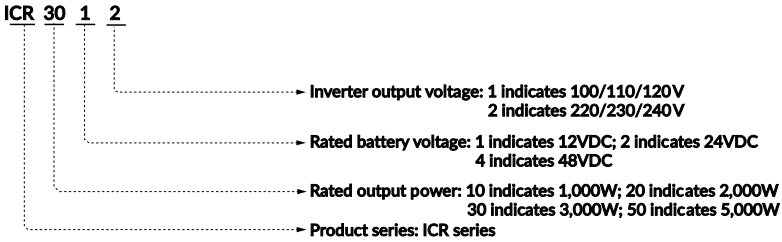
Features

- Full intelligent digital energy storage equipment
- PFC technology with high power factor to reduce the grid usage, low harmonic content of AC current
- Supports charging from multiple types of generators(1)
- Battery voltage controls the dry contact state to control the external equipment
- Battery charging or discharging current limit to compatible with different types of batteries
- ECO Mode and low-voltage power-off functions to prolong the service life of the battery
- RS485 communication port with optional WiFi, Bluetooth, or TCP modules for remote monitoring
- Three-stage charging method to ensure battery safety
- Lithium battery communication port to perform the safe charging and discharging

- -20℃ to +65℃ operating temperature range to meet more environment requirements

(1) When connecting a non-inverter generator, the charging current maybe cannot reach the rated power. It is recommended to connect an inverter generator. And when using the generator, you need to set the AC input to the generator mode, please refer to the Subsection 3.2.2 Other parameters for the specific setting method.

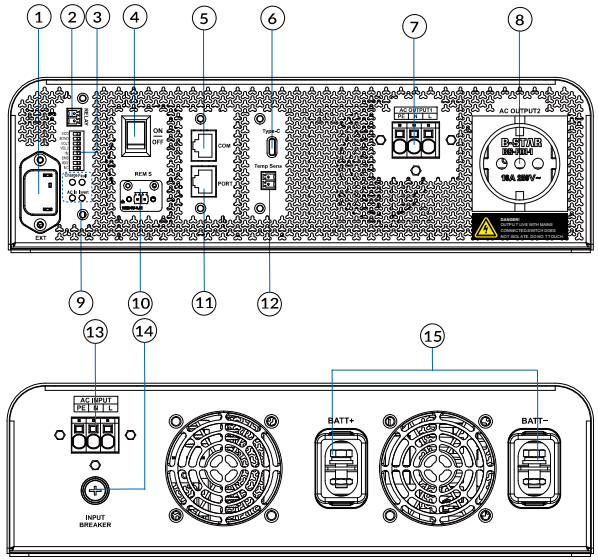
Naming rules



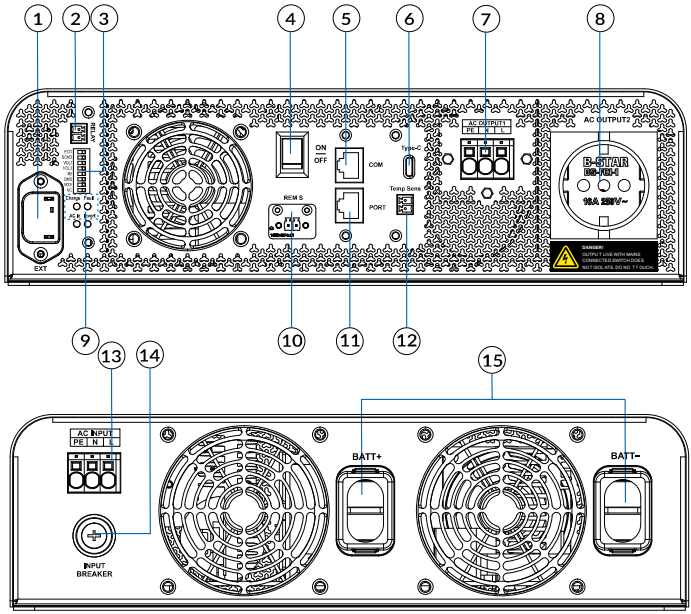
1.2 Product exterior

1.2.1 Appearance and ports

- **ICR1012**



- **ICR2012, ICR3012**



No.	Description	No.	Description
1	WiFi, Bluetooth module ports	9	Indicators(6)
2	Dry contact port(1)	10	Remote switch port
3	DIP switch(2)	11	External communication port(7)
4	Power switch	12	RBTS (Remote battery temperature sensor) interface
5	RS485 port (RJ45, with isolation design)(3)	13	AC input terminal
6	Fast-charging Type-C port(4) (5/9/12/15VDC-3A, 20V-3.25A)	14	External fuse
7	AC output terminal × 1	15	Battery connection port
8	AC output terminal × 2(5)		

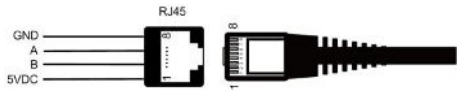
(1) The dry contact interface is connected with the generator switch in parallel to turn on/off the generator. Dry contact specification: 1A@125VAC.

(2) DIP switch instructions:

Switch	Description	Switch	Description
ECO	Set Saving Energy Mode	Hz	Set AC output frequency
BOND	Set N-PE relay	BMS	Enable BMS communication
VOL1	Set AC output voltage	MODE	Select charging modes (Reserved)
VOL2	Set AC output voltage	NC	/

Note: The specific settings refer to Subsection 3.2.1 DIP switch.

(3) Remote monitoring is achieved by connecting the WiFi or TCP modules via RS485 communication port. Pin definition of the RS485 port(RJ45) is as follows:



Pin	Definition	Pin	Definition
1	+5VDC	5	/
2	/	6	RS485-A
3	RS485-B	7	/
4	/	8	GND

(4) Fast-charging Type-C port is standard on selected models within this product series.

(5) The AC output socket models vary depending on different regions.

(6) Indicator status instructions:

Indicator	Description
Invert	Green light stays on when the power supply is operating in inverter mode.
AC In	Green light flashes slowly (at 0.25Hz) when utility power or a generator is connected.
Charge	Green light stays on during Constant Charging or Equalization Charging modes; green light flashes slowly (at 0.25Hz) during Floating Charging mode.

Fault	Red light flashes slowly (at 0.25Hz) when a fault occurs.

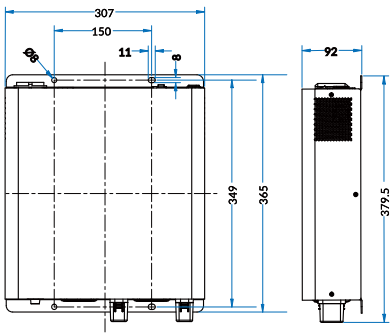
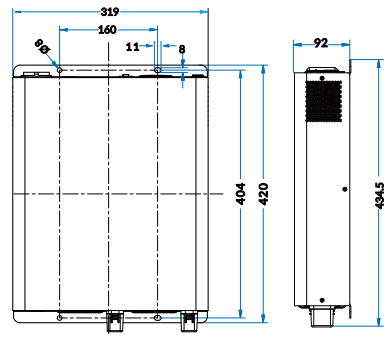
(7) The external communication interface supports BMS (RS485), CAN, or LIN communication functions, and users can select the corresponding interface type based on actual application scenarios. Through a built-in BMS-Link module, direct connection of lithium batteries to the BMS communication port is enabled, and different BMS protocols can be converted into our company's standard BMS protocol by setting the protocol numbers. In addition, it realizes the communication between the inverter charger and different BMS companies' standards. The CAN interface supports RV-C protocol, and the LIN interface supports CI-BUS protocol. Pin definitions are provided below:

Pin	Definition	Pin	Definition
1	/	5	CAN-L
2	/	6	RS485-A
3	RS485-B	7	LIN
4	CAN-H	8	GND

Tip	Please go to EPEVER official website: www.epever.com to review or download the currently supported BMS manufacturers and the BMS parameters.

1.2.2 Dimensions

Unit: mm

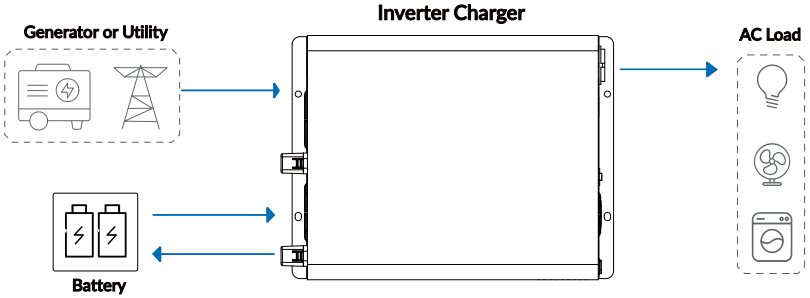
ICR1012	ICR2012, ICR3012
	

2 Installation and Connection

2.1 Precautions

- Please read the manual carefully to get familiar with the installation steps before installation.
- Be very careful when installing the batteries, especially flooded lead-acid batteries. Please wear eye protection, and have fresh water available to rinse if any contact with battery acid.
- Keep the battery away from any metal objects, which may cause a short circuit of the battery.
- Combustible and harmful gases may come out from the battery during charging. Ensure the ventilation condition is good.
- Ensure that the bearing capacity of the wall meets the wall-mounted requirements.
- Ventilation is highly recommended if mounted in an enclosure. Never install the inverter charger in a sealed enclosure with flooded batteries! Battery fumes from vented batteries will corrode and destroy the inverter charger circuits.
- The inverter charger can work with a lead-acid battery and lithium battery within its control scope.
- Ensure all switches and breakers are disconnected before wiring. Please operate the inverter charger after checking that all wiring is correct.
- Loose connections and corroded wires can lead to overheating, which may cause the insulation of the wires to melt and ignite surrounding materials, thereby creating a fire hazard. Ensure that all connections are secure and utilize cable clamps to prevent movement of the cables.
- Select the system connection cables according to the current density no greater than 5A/mm^2.
- The inverter charger is for indoor installation only. Do not install the inverter charger in the humid, salt spray, corrosive, greasy, flammable, explosive,dust accumulative or other severe environments.
- High voltage still exists inside the inverter charger after turning off the switch. Do not open or touch the internal devices; wait ten minutes before conducting related operations.
- Both utility input and AC output are of high voltage. Please do not touch the wiring connection.
- When the fan is working, please do not touch it to avoid injury.

2.2 System schematic diagram



NOTICE

- For different battery types, confirm the relevant parameters before power on.
- There are various types of oil generators with complex output situations. It is recommended to use the variable frequency oil generator. If a non-variable frequency oil generator is used, actual testing is required before use.

2.3 Mounting the inverter charger

⚠ DANGER

- Risk of explosion! Do not install the inverter charger in a sealed enclose with flooded batteries!
- Do not install the inverter charger in a confined area where the battery gas can accumulate.

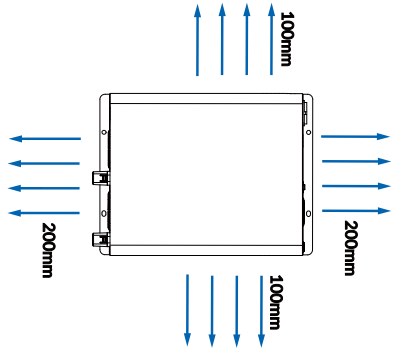
NOTICE

- It is not recommended to use the inverter charger in an enclosed environment. Enclosed environments or enclosures will impede device heat dissipation. If installation in an enclosed enclosure is unavoidable, ensure effective heat dissipation through the enclosure and do not operate the device at full load; otherwise, the device may trigger over-temperature protection.
- The inverter charger requires a minimum clearance of 200mm from the right and left edges, and clearance of 100mm from of upper and lower edges from the inverter charger.

Step 1: Please read the user manual carefully before installation.

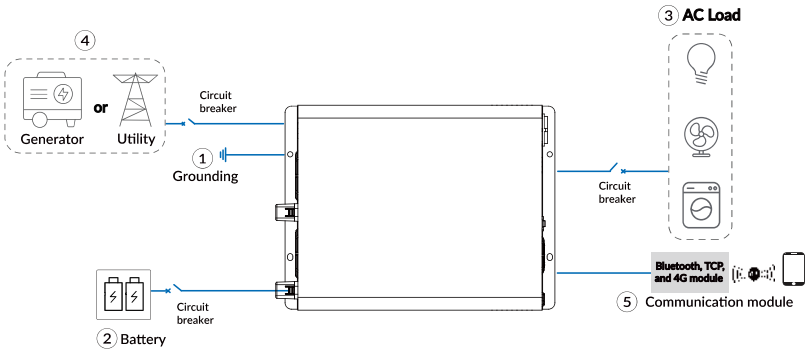
Step 2: Determine the installation location of the inverter charger (wall-mounted or floor-standing installation is acceptable). During installation, ensure sufficient airflow around the unit:

reserve a clearance of at least 100 mm above and below the unit, and at least 200 mm on the left and right sides. Refer to the diagram below.



2.4 Wiring the inverter charger

Connect the inverter charger in the order of "① Grounding > ② Battery > ③ Load > ④ Utility or Generator > ⑤ Optional accessories", and disconnect the inverter charger in the reverse order.



2.4.1 Wire size and circuit breaker

The wiring and installation methods must conform to all national and local electrical code requirements.

a) Recommended utility wire size

Model	Utility Wire Size	Circuit Breaker
ICR1012	1.5mm²/15AWG	2P

ICR2012	4mm^2/11AWG	2P—25A/250VAC
ICR3012	4mm^2/11AWG	2P—25A/250VAC

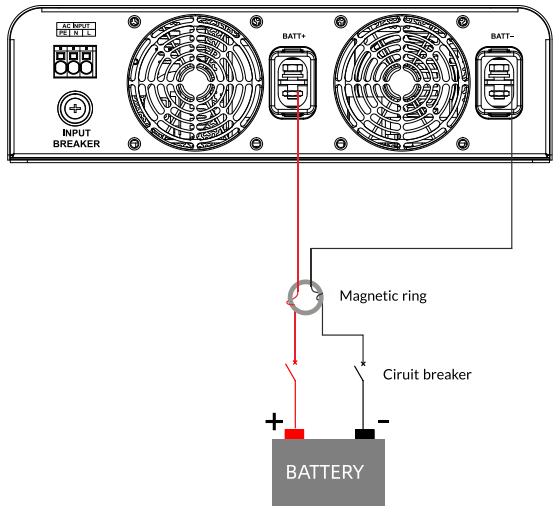
b) Recommended battery wire size and circuit breaker

Model	Battery Wire Size	Circuit Breaker
ICR1012	25mm^2/3AWG	2P

2.4.3 Connecting the battery

NOTICE

- Please disconnect the circuit breaker before wiring and ensure that the leads of "+" and "-" poles are polarity correctly. The positive ("+") and negative ("-") terminals of the battery have no reverse protection circuit. No reverse connection allowed.
- A circuit breaker must be installed on the battery side. Please refer to Subsection 2.4.1 Wire size and circuit breaker for details.
- Some models in this product series come standard with a magnetic ring. For optimal electromagnetic compatibility performance, route both the positive and negative battery cables through the magnetic ring once near the chassis wiring hole before connecting them to the internal terminals.



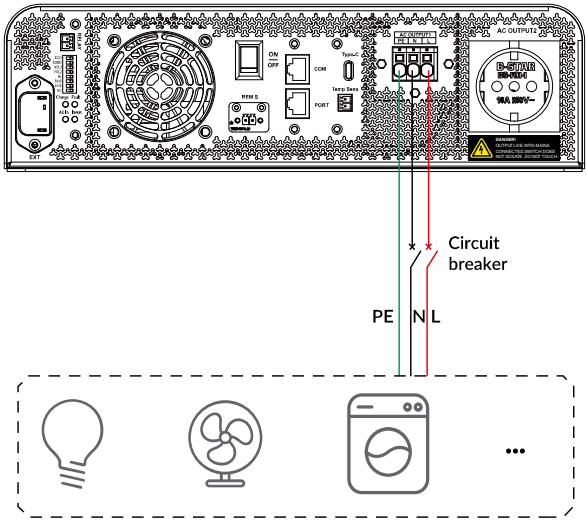
2.4.4 Connecting the AC output

DANGER

High voltage! Electric shock hazard! When wiring the AC load, please disconnect the circuit breaker and ensure that the poles' leads are connected correctly.

NOTICE

If inductive loads such as motors, or a bidirectional transfer switch is connected to the AC output terminal, a separate overvoltage and overcurrent protector (VA-Protector) needs to be installed at the AC output terminal.



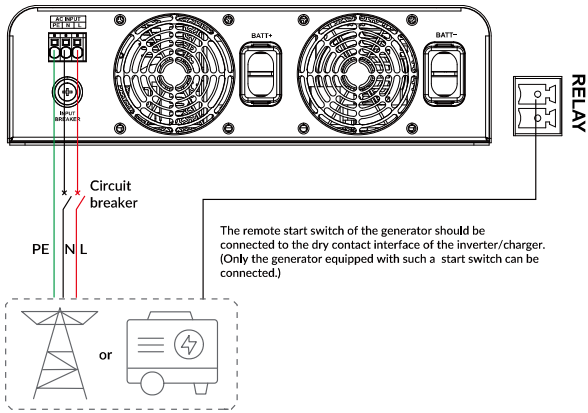
2.4.5 Connecting the utility or generator

DANGER

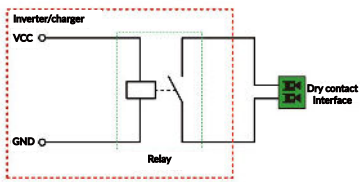
- High voltage! Electric shock hazard! The utility input can generate very high voltage. Disconnect the circuit breaker or fast-acting fuse before wiring and ensure that the poles' leads are connected correctly.
- After the utility is connected, the battery cannot be grounded. In contrast, the inverter charger cover must be grounded reliably to shield the outside electromagnetic interference effectively and prevent the cover from causing electric shock to the human body.
- Electrical Shock Hazard! When AC power is supplied to the AC INPUT port (meeting requirements), AC OUTPUT will still activate—even if the inverter's local switch is off. This is the default bypass function.

NOTICE

- Suppose the inverter charger is used in an area with frequent lightning strikes. In that case, install an external surge arrester at the utility input terminals is a must.
- There are various types of oil generators with complex output situations. It is recommended to use the variable frequency oil generator. If a non-variable frequency oil generator is used, actual testing is required before use.



Dry contact interface: The dry contact interface can turn on/off the oil generator and is connected parallel with the oil generator's switch.

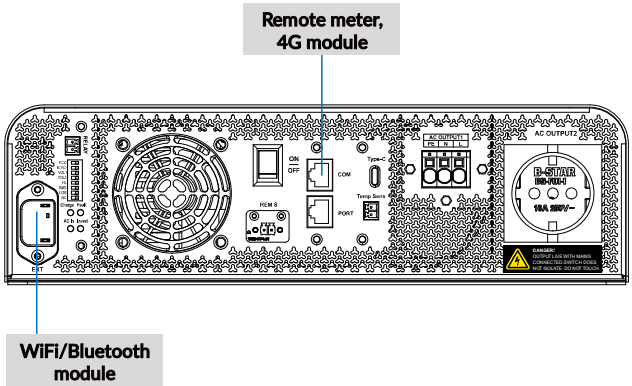


Working principle:

When the battery voltage is lower than and equal to (≤) the "Dry Contact ON Voltage", the dry contact is connected. Its coil is energized. When the battery voltage is higher than and equal to (≥) the "Dry Contact OFF Voltage", the dry contact is disconnected. The dry contact can drive loads of no more than 125VAC/1A, 30VDC/1A. According to different battery types of the inverter charger, the default values of the Dry Contact ON/OFF Voltage are different. Please refer to Subsection 3.2.2 Others parameters for the details.

2.4.6 Connecting the communication ports

A WiFi/Bluetooth communication module is integrated into the WiFi/BLE port. The COM port allows for external connection of a 4G module or a remote meter. Via these communication modules, end-users can remote monitor the inverter charger or modify parameters on the phone APP or remote meter. For detailed configuration procedures, please refer to the instruction manuals for communication components including the cloud APP, WiFi, and 4G modules.



3 Operation

3.1 Checking before powering on

Step 1: Double check whether the wire connection is correct.

Step 2: Connect the battery circuit breaker.

Step 3: Turn on the inverter charger power switch. The LCD will be lit, which means the system running is normal.

Step 4: Set parameters by the DIP switch or APP.

Step 5: Use the inverter charger. Connect the load circuit breaker and connect the utility in sequence. After the AC output is normal, turn on the AC loads one by one. The inverter charger will perform normal work according to the set mode.

3.2 Parameter settings

3.2.1 DIP switch

NO.	Switch	Setting	Illustration	Description
1	Saving Energy Mode	ECO ON		

BOND ON

2 N-PE relay

		Hz ON
5	AC output frequency	

			Note: N = Rated battery voltage/12.
2	CLV (Charging Limit Voltage)	15.0V	User define: Equalization Charging Voltage < Charging Limit Voltage < Overvoltage Disconnect Voltage, step size: 0.1V
3	OVR (Overvoltage Recovery Voltage)	15.0V	User define: (Discharging Limit Voltage plus 0.1*N ≤ Overvoltage Recovery Voltage ≤ (Overvoltage Disconnect Voltage minus 0.1*N), step size: 0.1V **Note:** N = Rated battery voltage/12.
4	ECV (Equalization Charging Voltage)	14.6V	User define: Bulk Charging Voltage ≤ Equalization Charging Voltage < Charging Limit Voltage, step size: 0.1V
5	BCV (Bulk Charging Voltage)	14.4V	User define: Float Charging Voltage ≤ Bulk Charging Voltage ≤ Equalization Charging Voltage, step size: 0.1V
6	FCV (Float Charging Voltage)	13.8V	User define: Bulk Recovery Voltage < Float Charging Voltage ≤ Bulk Charging Voltage, step size: 0.1V
7	BRV (Bulk Recovery Voltage)	13.2V	User define: Low Voltage Recovery Voltage < Bulk Recovery Voltage < Float Charging Voltage, step size: 0.1V
8	LVR (Low Voltage Recovery Voltage)	12.6V	User define: Low Voltage Disconnect Voltage < Low Voltage Recovery Voltage < Bulk Recovery Voltage, step size: 0.1V
9	UVWR (Undervoltage Alarm Recovery Voltage)	12.2V	User define: (Undervoltage Alarm Voltage plus 0.1*N) ≤ Undervoltage Alarm Recovery Voltage ≤ (Overvoltage Recovery Voltage minus 0.1*N), step size: 0.1V **Note:** N = Rated battery voltage/12.
10	UVW (Undervoltage Alarm Voltage)	12.0V	User define: (Discharging Limit Voltage plus 0.1*N) ≤ Undervoltage Alarm Voltage ≤ (Undervoltage Alarm Recovery Voltage minus 0.1*N), step size: 0.1V **Note:** N = Rated battery voltage/12. **Note:** This voltage is the disconnect voltage for the primary power-down of AC output. When the battery voltage drops to the

			mentioned value, the relay for AC output primary power-down is disengaged.
11	LVD (Low Voltage Disconnect Voltage)	11.1V	User define: Discharging Limit Voltage < Low Voltage Disconnect Voltage < Low Voltage Recovery Voltage, step size: 0.1V
12	DLV (Discharging Limit Voltage)	10.8V	Read-only
SOC Control Strategy			
13	FCP (Full Charge Protection SOC)	100%	Valid only when "BCCMode" is set to "SOC". When the battery SOC is higher than or equals to this value, the inverter charger will stop charging the battery. User define: (Full Charge Protection Recovery SOC plus 5%) to 100%, or 80% to 100%, step size: 1% **Note:** Take the maximum value between (Full Charge Protection Recovery SOC plus 5%) and 80%.
14	FCPR (Full Charge Protection Recovery SOC)	90%	Valid only when "BCCMode" is set to "SOC". When the battery SOC is lower than this value, the inverter charger will automatically charge the battery. User define: 60% to (Full Charge Protection SOC minus 5%), step size: 1%
15	LPAR (Low Power Alarm Recovery SOC)	40%	Valid only when "BCCMode" is set to "SOC". It cannot be set separately (equals to the DPR (Discharging Protection Recovery SOC)).
16	LPA (Low Power Alarm SOC)	25%	Valid only when "BCCMode" is set to "SOC". User define: 10% to 35%, or 10% to (Discharging Protection Recovery SOC minus 5%), step size: 1% **Note:** Take the minimum value between 35% and (Discharging Protection Recovery SOC minus 5%).

17	DPR (Discharging Protection Recovery SOC)	40%	Valid only when “BCCMode” is set to “SOC”. User define: (Discharging Protection SOC plus 5%) to 60%, or 20% to 60%, step size: 1% **Note:** Take the maximum value between (Discharging Protection SOC plus 5%) and 20%.
18	DP (Discharging Protection SOC)	20%	Valid only when “BCCMode” is set to “SOC”. When the battery SOC is lower than this value, the battery will automatically stop discharging. User define: 0 to 30%, or 0 to (Discharging Protection Recovery SOC minus 5%), step size: 1% **Note:** Take the minimum value between 30% and (Discharging Protection Recovery SOC minus 5%).
19	Set SOC	45%	Read-only. When the BMS is valid and the communication is normal, the real-time SOC value of the BMS needs to be uploaded to the inverter charger.

2. Utility

No.	Parameter List	Default	Instructions
1	UOD (Utility Overvoltage Disconnect Voltage)	265.0V	User define: (Utility Overvoltage Reconnect Voltage plus 5V) to 265.0V, step size: 0.1V
2	UOR (Utility Overvoltage Reconnect Voltage)	260.0V	User define: 220.0V to (Utility Overvoltage Disconnect Voltage minus 5V), step size: 0.1V
3	ULVD (Utility Undervoltage Disconnect Voltage)	190.0V	User define: 190.0V to (Utility Undervoltage Recovery Voltage minus 5V), step size: 0.1V
4	ULVR (Utility Undervoltage Recovery Voltage)	195.0V	User define: (Utility Undervoltage Disconnect Voltage plus 5V) to 220.0V, step size: 0.1V

5	UOF (Utility Overfrequency Disconnect Frequency)	65.0Hz	In the bypass state, when the actual utility input frequency is less than this value, the inverter charger will be switched to the inverter output state. User define: 52.0 to 65.0Hz, or (Utility Underfrequency Disconnect Frequency plus 0.5Hz) to 65.0Hz, step size: 0.1Hz **Note:** Take the maximum value between 52.0Hz and (Utility Underfrequency Disconnect Frequency plus 0.5Hz).
6	UFD (Utility Underfrequency Disconnect Frequency)	45.0Hz	In the bypass status, when the actual utility input frequency is less than this value, the inverter charger will be switched to the inverter output status. User define: 45.0 to 58.0Hz, or 40.0Hz to (Utility Overfrequency Disconnect Frequency minus 0.5Hz), step size: 0.1Hz **Note:** Take the minimum value between 58.0Hz and (Utility Overfrequency Disconnect Frequency minus 0.5Hz).
7	ACmode	Utility	User define: Utility; Generator When a generator works as the AC input source, set this mode to "Generator" to enhance the charging of the inverter charger. **Note:** If the configured AC input mode is not compatible with the actual AC source, the normal operation of the inverter charger will be affected. After setting, restart the inverter charger for the setting to take effect.

3. Load

No.	Parameter List	Default	Instructions
1	INVOVL (Inverter Output Voltage)	230V	User define: 220V/230V/240V
2	INVOFR (Inverter Output Frequency)	50Hz	User define: 50Hz/60Hz **Note:** When connecting to the utility and detecting the frequency of the utility, the output of the utility bypass status will subject to the utility frequency. For single inverter

			charger, it will take effect immediately after the output frequency is changed.
4. Battery			
No.	Parameter List	Default	Instructions
1	Battery Capacity	100.0AH	User define: 10.0 to 2,400.0AH, step size: 0.1AH
2	BType (Battery Type)	AGM	12V battery type: AGM, GEL, FLD, LFP4S, NCM3S
3	BET (Battery Equalization Charging)	Disable	User define: Disable; Enable
4	BECT (Battery Equalization Charging Time)	120 Min	User define: 10 minutes to 180 minutes, step size: 1 minute
5	BECD (Battery Equalization Charging Date)	28D	User define: 1–28, step size: 1
6	BBCT (Battery Bulk Charging Time)	120 Min	User define: 10 minutes to 180 minutes, step size: 1 minute
7	BTCC (Battery Temperature Compensation Coefficient)	3	User define: 0–9, step size: 1 **Note:** This option is reserved, which is invalid currently.
8	Li PROT (Lithium Battery Protection)	Disable	User define: Disable; Enable Set the parameter as “Enable”, and the Low Temperature Charging Limit will be valid.
9	LTSChrg (Low Temperature Stop Charging Temperature)	0℃	User define: -20.0℃ to 0℃, step size: 0.1℃ When the environment or battery temperature is lower than this value, the inverter charger will stop charging the battery.

10	LTSDischrg (Low Temperature Stop Discharging Temperature)	-20.0℃	User define: -20.0℃ to 0℃, step size: 0.1℃ When the environment or battery temperature is lower than this value, the inverter charger will stop discharging.
11	BATT OTP (Battery Over Temperature Protection)	50.0℃	User define: (Battery Over Temperature Protection Recovery plus 5℃) to 60.0℃, step size: 0.1℃
12	BATT OTPR (Battery Over Temperature Protection Recovery)	45.0℃	User define: 30℃ to (Battery Over Temperature Protection minus 5℃), step size: 0.1℃
13	BCCMode (Battery Charging Control Mode)	VOL	User define: VOL; SOC VOL: Set the parameter as "VOL", the relevant battery voltage control parameters will be valid. SOC: Set the parameter as "SOC", the relevant battery SOC parameters will be valid. **Note:** When "SOC" is selected and there is no connection to the BMS, it is recommended to correctly set the battery capacity and perform multiple complete charge-discharge cycles. Only in this way can the SOC be accurately displayed.
14	LBACC (Local Battery Available Charging Current)	50.0A	User define: 5.0–50.0A, step size: 0.1A ICR1012
		100.0A	User define: 5.0–100.0A, step size: 0.1A ICR2012
		150.0A	User define: 5.0–150.0A, step size: 0.1A ICR3012
15	LBADC (Local Battery Available Discharging Current)	100.0A	User define: 5.0–100.0A, step size: 0.1A ICR1012
		200.0A	User define: 5.0–200.0A, step size: 0.1A ICR2012

		300.0A	User define: 5.0–300.0A, step size: 0.1A ICR3012
5. BMS			
No.	**Parameter List**	**Default**	**Instructions**
1	BMSProt (BMS Protocol)	27	User define: 0–240, step size: 1 **Note:** Refer to the Lithium Battery Protocol file.
2	BMS (BMS Enable)	Disable	User define: Disable; Enable Set the parameter as “Enable”, the inverter charger can communicate normally with the battery pack.
3	BMSVolt (BMS Voltage)	Disable	User define: Disable; Enable Set the parameter as “Enable”, the internal voltage control parameters of the BMS will be automatically synchronized into the inverter charger, and the inverter charger will control the battery charging and discharging based on these data.
4	BMSCurr (BMS Current)	Invalid	User define: Invalid; BMS Set the parameter as “Invalid”, the inverter charger controls the charging and discharging according the value set on the LCD. Set the parameter as “BMS” the inverter charger controls the charging and discharging according to the read BMS value.
5	BMSFail (BMS Fail Action)	DSP	User define: DSP; Disable DSP: The inverter charger works according to the default mode and parameters. Disable: No charging and discharging, equivalent to standby mode.
6. Sys Param Setup			
No.	**Parameter List**	**Default**	**Instructions**
1	DCT ON (Dry Contract ON Voltage)	11.0V	User define: 0 to (Dry Contact OFF Voltage minus 0.2*N) (N = Rated battery voltage/12), step size: 0.1V

			When voltage is less than this set value, the dry contact switch closes.
2	DCT OFF (Dry Contract OFF Voltage)	12.5V	User define: (Dry Contact ON Voltage plus 0.2*N) to Overvoltage Disconnect Voltage (N = Rated battery voltage/12), step size: 0.1V When battery voltage is greater than this set value, the dry contact switch opens.
3	SOC Reset	--	When activated, the system automatically recalculates and updates the SOC value based on real-time battery voltage measurements.
4	ECO Mode	Disable	User define: Enable; Disable If AC output power stays <50W for “PWRSDT”, the inverter charger enters ECO mode.
5	Low Consumption Mode	Enable	User define: Enable; Disable The Low Consumption Mode will be activated when the following conditions are met: no utility power, and battery voltage below the LVD value.
6	Clear Statistical Power	Day/Month/ Year	User define: Day/Month/Year; Total Generation After selecting “Day/Month/Year” or “Total Generation”, pressing the “Clear” button can clear the corresponding accumulated power.
7	Charging Mode (Reserved)	Charge+Invert	User define: Charge Only; Charge+Invert
8	Buzzer Alarm	ON	User define: ON; OFF When the buzzer alarm switch is set to "ON", the device will trigger the buzzer upon fault detection and automatically mute it after the fault is cleared. If set to "OFF", the buzzer remains silent regardless of the device's status.

9	BOND	Enable	User define: Enable; Disable
10	PWRSDT (Power Saving Detection Time)	10 min	User define: 1-10 minutes, step size: 1 minute
11	Factory Reset	-	Restore factory settings **Note:** After restoring factory settings, the indicator will turn off and then the inverter charger will restart automatically, indicating that the settings have taken effect.

3.2.3 Battery parameters setting

The following table lists the setting process for different application scenarios. To ensure optimal battery performance and long-term, safe system operation, configure parameters appropriately based on your current battery conditions (e.g., whether it is a lithium battery pack and whether it has a BMS function).

a) Setting process for battery without BMS

When the system adopts the battery without BMS, follow the table below to set parameters correctly. The inverter charger controls charging and discharging based on the LCD settings.

Interface	Parameters	Define
BMS	Battery Capacity	Set according to the actual battery type.
	Battery Type	
	Battery Charging Control Mode	Set it to "VOL" or "SOC", the inverter charger controls charging and discharging based on the set battery voltage control parameters or SOC control parameters.

b) Setting process for battery with BMS

Interface	Parameters	Define
BMS	Battery Type	Set according to the actual battery type.
	Battery Charging Control Mode	Set it to "VOL" or "SOC", the inverter charger controls charging and discharging based on the set battery voltage control parameters or SOC control parameters.

BMS	BMS enable	Enable
	BMS Protocol	Set according to the actual battery protocol.
	BMS Voltage	Enable
	BMS Current	BMS

NOTICE

The inverter charger will control charging and discharging based on the settings after setting the "BMSCurr" as "Invalid" or the communication between battery and inverter charger fails.

3.2.4 Battery voltage control parameters

a) Lead-acid battery

The parameters are measured in the condition of 25℃/12V.

Battery Type / Voltage Control Parameters	AGM	GEL	FLD	User Define
Overvoltage Disconnect Voltage	16.0V	16.0V	16.0V	9–16V
Charging Limit Voltage	15.0V	15.0V	15.0V	9–16V
Overvoltage Recovery Voltage	15.0V	15.0V	15.0V	9–16V
Equalization Charging Voltage	14.6V	14.2V	14.8V	9–16V
Bulk Charging Voltage	14.4V	14.2V	14.6V	9–16V
Float Charging Voltage	13.8V	13.8V	13.8V	9–16V
Bulk Recovery Voltage	13.2V	13.2V	13.2V	9–16V
Low Voltage Recovery Voltage	12.6V	12.6V	12.6V	9–16V
Undervoltage Alarm Recovery Voltage	12.2V	12.2V	12.2V	9–16V
Undervoltage Alarm Voltage	12.0V	12.0V	12.0V	9–16V
Low Voltage Disconnect Voltage	11.1V	11.1V	11.1V	9–16V
Discharging Limit Voltage	10.8V	10.8V	10.8V	Read-only

When setting the battery voltage control parameters, the following rules must be obeyed:

A. Overvoltage Disconnect Voltage > Charging Limit Voltage ≥ Equalization Charging Voltage ≥ Bulk Charging Voltage ≥ Float Charging Voltage > Bulk Recovery Voltage

B. Overvoltage Disconnect Voltage > Overvoltage Recovery Voltage

C. Low Voltage Recovery Voltage > Low Voltage Disconnect Voltage ≥ Discharging Limit Voltage

D. Undervoltage Alarm Recovery Voltage ≥ Undervoltage Alarm Voltage ≥ Discharging Limit Voltage

E. Bulk Recovery Voltage > Low Voltage Recovery Voltage

b) Lithium battery

Battery Type / Voltage Control Parameters	12V system			
	NCM		LFP	
	NCM3S	User Define	LFP4S	User Define
Overvoltage Disconnect Voltage	12.9V	10.6–16V	14.8V	10.6–16V
Charging Limit Voltage	12.7V	10.6–16V	14.6V	10.6–16V
Overvoltage Recovery Voltage	12.7V	10.6–16V	14.6V	10.6–16V
Equalization Charging Voltage	12.5V	10.6–16V	14.2V	10.6–16V
Bulk Charging Voltage	12.5V	10.6–16V	14.2V	10.6–16V
Float Charging Voltage	12.0V	10.6–16V	13.6V	10.6–16V
Bulk Recovery Voltage	11.7V	10.6–16V	13.3V	10.6–16V
Low Voltage Recovery Voltage	11.1V	10.6–16V	13V	10.6–16V
Undervoltage Alarm Recovery Voltage	11V	10.6–16V	12.8V	10.6–16V
Undervoltage Alarm Voltage	10.8V	10.6–16V	12.4V	10.6–16V
Low Voltage Disconnect Voltage	10.8V	10.6–16V	11.6V	10.6–16V
Discharging Limit Voltage	10.8V	Read-only	10.8V	Read-only

When setting the lithium battery voltage control parameters, the following rules must be obeyed:

A. Overvoltage Disconnect Voltage < Over Charging Protection Voltage (BMS Circuit Protection Modules) minus 0.2V

B. Overvoltage Disconnect Voltage > Charging Limit Voltage ≥ Equalization Charging Voltage ≥ Bulk Charging Voltage ≥ Float Charging Voltage > Bulk Recovery Voltage

C. Overvoltage Disconnect Voltage > Overvoltage Recovery Voltage

D. Bulk Recovery Voltage > Low Voltage Recovery Voltage > Low Voltage Disconnect Voltage ≥ Discharging Limit Voltage

E. Undervoltage Alarm Recovery Voltage ≥ Undervoltage Alarm Voltage ≥ Discharging Limit Voltage

F. Low Voltage Disconnect Voltage ≥ Over Discharging Protection Voltage (BMS Circuit Protection Modules) plus 0.2V

NOTICE

The voltage control accuracy of BMS circuit protection module must be at least ± 0.2V. The [Overvoltage Disconnect Voltage] shall be lower than the protection voltage of the BMS circuit protection module. In contrast, the [Low Voltage Disconnect Voltage] shall be higher. The increased voltage of the [Overvoltage Disconnect Voltage] and the [Low Voltage Disconnect Voltage] is determined by the control accuracy of the BMS circuit protection module.

4 Maintenance

The following inspections and maintenance tasks are recommended at least twice yearly for best performance.

- Make sure the well ventilation and heat dissipation of the inverter charger and clear up dirt and fragments on the fan.
- Check for damage to exposed wires caused by sun exposure, friction with surrounding objects, dry rot, or insect and rodent activity. Repair or replace damaged wires as necessary.
- Check and confirm that LED or LCD is consistent with the required. Pay attention to any troubleshooting or error indication. Take necessary corrective action
- Check for signs of corrosion, insulation damage, high temperature or burning/discoloration on the terminal screws. Tighten terminal screws to the suggested torque.
- Check for dirt, nesting insects, and corrosion, and clean up in time as required.
- Check and confirm that the lightning arrester is in good condition. Replace a new one in time to avoid damaging the inverter charger and other equipment.

⚠ DANGER

Electric shock hazard! Make sure that the power supply of the inverter charger is disconnected when performing the above operations, and wait for 10 minutes for the power in the capacitor to be discharged before performing the corresponding checks or operations.

5 Protections

No.	Protections	Instruction			
1	Utility input overvoltage	When the utility voltage exceeds the set value of "Utility Overvoltage Disconnect Voltage", the utility will stop charging and supplying the load.			
2	Utility input undervoltage	When the utility voltage is less than the set value of "Utility Low Voltage Disconnect Voltage", the utility will stop charging and supplying the load.			
3	Battery overvoltage	When the battery voltage exceeds the "Overvoltage Disconnect Voltage",the utility will stop charging the battery to protect the battery from overcharging.			
4	Battery over discharge	When the battery voltage goes lower than the "Low Voltage Disconnect Voltage", the battery will stop discharging to protect the battery from being over-discharged.			
5	Load output short-circuit	The load output is turned off immediately when a short circuit occurs. And then, the output is recovered automatically after a delay time of 5s, 10s, and 15s separately (if the recovery is less than 3 times within 5 minutes, it will be recounted). The inverter charger stops working after the 4th protection and can resume working after resetting via cloud PP or restarting. Clear the fault in time because it may damage the inverter charger permanently.			
6	Device overheating	When the internal temperature overheats, the inverter charger will stop charging/discharging. The inverter charger will resume charging/discharging when the internal temperature is normal and the protection time lasts more than 20 minutes.			
7	Inverter overload	1.05–1.3* Rated power	1.3–1.5* Rated power	1.5–2* Rated power	P ≥ 2* Rated power

		Protect after 60 seconds	Protect after 10 seconds	Protect after 5 seconds	Protect immediately
		Note: The output is recovered automatically after a delay time of 5s, 10s, and 15s separately. The inverter charger stops working after the 4th protection and can resume working after resetting or restarting.			
8	Utility bypass overload	1.5–2* Rated power	2–2.5* Rated power	P ≥ 2.5* Rated power	
		Protect after 30 seconds	Protect after 5 seconds	Protect immediately	
		Note: The output is recovered automatically after a delay time of 5s, 10s, and 15s separately. The inverter charger stops working after the 4th protection and can resume working after resetting or restarting.			

6 Troubleshooting

When the inverter charger encounters any fault, the FAULT indicator will flash red slowly. Specific fault codes can be viewed via the cloud APP.

6.1 Battery faults

Error Code(1)	Fault/Status	Buzzer	Solution
ER04	Battery Overvoltage	--	Disconnect the charging status, and check whether battery voltage is too high. Verify if the actual battery voltage matches the rated battery voltage; or check if the "Overvoltage Disconnect Voltage" is inconsistent with the battery specifications. After the battery voltage drops below the set value of "Overvoltage Recovery Voltage", the alarm will automatically be cleared.
ER05	Battery Undervoltage		Disconnect the loads connection, and check whether the battery voltage is too low. After the battery is charged and its voltage is restored to above the "Low Voltage Recovery Voltage", it will automatically resume normal work, or use other methods to charge the battery.
ER11	Battery Over Temperature		Ensure the battery is installed in a cool and well-ventilated place, and check that the battery's actual charging and discharging current does not exceed the set values of "Battery Maximum Charging Current" and "Battery Maximum Discharging Current". It resumes normal work when the battery cools down to below the "Battery Over Temperature Protection Recovery".
ER37	Battery Charging Overcurrent		Check if the battery's actual charging/discharging current exceeds the set values of "Battery Maximum Charging Current" and "Battery Maximum Discharging Current".
ER58	Battery Discharging Overcurrent		

ER39	Battery Cable Disconnected		Check whether the battery connection is normal, and whether the BMS protection occurs.
ER50	Battery Undervoltage Alarm		Check if the battery voltage is less than the “Undervoltage Alarm Voltage”.
ER56	Battery Connection Failed		Check whether the battery connection is normal and the BMS communication of the lithium battery is normal.

6.2 Inverter faults

Error Code(1)	Fault/Status	Buzzer	Solution
ER02	Inverter Output Overcurrent	Intermittent beeps	Check if the load actual power exceeds the rated power (namely, the inverter charger’s continuous output power), disconnect the load completely and turn off the inverter charger. Wait 5 minutes and then turn on the inverter charger to check if it resumes normal. If it is still abnormal, please contact our technical support.
ER07	Inverter Output Overvoltage	Intermittent beeps	Disconnect the load completely and turn off the inverter charger. Wait 5 minutes and then turn on the inverter charger to check if it resumes normal. If it is still abnormal, please contact our technical support.
ER10	Inverter Over Temperature	--	Ensure the inverter charger is installed in a cool and well-ventilated place.
ER22	Inverter Hardware Overvoltage	--	Disconnect the load completely and turn off the inverter charger. Wait 5 minutes and then turn on the inverter charger to check if it resumes normal. If it is still abnormal, please contact our technical support.

ER23	Inverter Hardware Overcurrent	Intermittent beeps	--
ER32	Inverter Voltage OFFSET Error	--	--
ER35	Inverter Current OFFSET Error	--	--
ER45	Inverter Temp Sensor Disconnected	--	Turn off the inverter charger first, wait for 5 minutes and then turn on the inverter charger to check if it resumes normal. If it is still abnormal, please contact our technical support.
ER49	Inverter Output Undervoltage	Intermittent beeps	Check if the load actual power exceeds the rated power (namely, the inverter charger's continuous output power), disconnect the load completely and turn off the inverter charger. Wait 5 minutes and then turn on the inverter charger to check if it resumes normal. If it is still abnormal, please contact our technical support.
ER61	Low-voltage Module Over Temperature	--	Ensure the inverter charger is installed in a cool and well-ventilated place.

6.3 Utility faults

Error Code(1)	Fault/Status	Buzzer	Solution
ER08	Utility Overvoltage	Intermittent beeps	Check if the utility voltage is normal (i.e. within the "Utility work voltage range"), disconnect the AC input completely and turn off the inverter charger. Wait for 5 minutes and then turn on the inverter charger to check if it

			resumes normal operation. If it is still abnormal, please contact our technical support.
ER09	Utility Overcurrent		Check if the load actual power exceeds the rated power (namely, the inverter charger's continuous output power), disconnect the load completely and turn off the inverter charger. Wait 5 minutes and then turn on the inverter charger to check if it resumes normal. If it is still abnormal, please contact our technical support.
ER25	Utility Undervoltage	--	
ER28	Utility Pre-charge Timeout	--	Disconnect the Utility input and turn off the inverter charger first. Wait for 5 minutes and then turn on the inverter charger to check if it resumes normal. If it is still abnormal, please contact our technical support.
ER29	Utility Relay Adhesion		
ER31	Utility Frequency Error	Intermittent beeps	

6.4 Load faults

Error Code[1]	Fault/Status	Buzzer	Solution
ER33	Load Current OFFSET Error	--	Disconnect the load completely and turn off the inverter charger. Wait 5 minutes and then turn on the inverter charger to check if it resumes normal. If it is still abnormal, please contact our technical support.
ER48	Load Over Load	Intermittent beeps	
ER55	Overload Lockdown		

6.5 Other faults for single inverter charger

Error Code(1)	Fault/Status	Buzzer	Solution
ER00	DC Bus Overvoltage	--	Turn off the inverter charger first, wait for 5 minutes and then turn on the inverter charger to check if it resumes normal. If it is still abnormal, please contact our technical support.
ER06	DC Bus Undervoltage		
ER12	Ambient Over Temperature		Ensure the inverter charger is installed in a cool and well-ventilated place.
ER21	Battery or Bus Hardware Overvoltage		Turn off the inverter charger first, wait for 5 minutes and then turn on the inverter charger to check if it resumes normal. If it is still abnormal, please contact our technical support.
ER24	High Volt Bus Hardware Overcurrent		
ER36	High Volt Bus Current Abnormal		
ER38	Boost Drive Error		
ER40	Auxiliary Power Supply Abnormal		
ER42	Ambient Temp Sensor Disconnected		Turn off the inverter charger first, wait for 5 minutes and then turn on the inverter charger to check if it resumes normal. If it is still abnormal, please contact our technical support.
ER46	Low Temperature Charging Limit		Check whether the ambient temperature is less than the set “Low Temperature Charging Limit” and "Low Temperature Discharging Limit”.
ER47	Low Temperature Discharging Limit		

ER54	EEprom Abnormal		Turn off the inverter charger first, wait for 5 minutes and then turn on the inverter charger to check if it resumes normal. If it is still abnormal, please contact our technical support.
ER57	Model Abnormal		--
ER141	FLASH Error	-	Check the BMS communication status or BMS setting parameters.
ER142	DSP Time Out		
ER143	DSP Data Error		

6.6 BMS faults

Error Code(1)	Fault/Status	Buzzer	Solution
ER128	BMS Error	--	Check the BMS communication status or BMS setting parameters.
ER129	Cell Under Voltage		
ER130	Cell Over Voltage		
ER131	Pack Under Voltage		
ER132	Pack Over Voltage		
ER133	Charge Over Current		
ER134	Discharge Over Current		
ER135	Discharge Short Circuit		
ER136	Charge High Temperature		

ER137	Charge Low Temperature		
ER138	Discharge High Temperature		
ER139	Discharge Low Temperature		
ER140	MOSFET High Temperature		

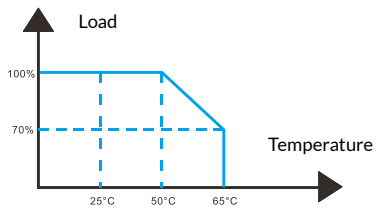
(1) When multiple faults occur simultaneously, the LCD only displays the fault code with the smallest value.

7 Technical Specifications

Model	ICR1012	ICR2012	ICR3012
Battery (DC)			
Voltage Range	10.8V–16V		
Rated Voltage	12V		
Maximum Charging Current	50A	100A	150A
Utility Input			
Rated Input Power (Charging + Bypass)	1,500W	3,000W	4,500W
Rated Input Voltage	230VAC		
Input Voltage Range	190–265VAC		
Input Frequency Range	45–65Hz		
Inverter Output			
Rated Output Power	1,000W	2,000W	3,000W
Transient Surge Output Power	2*Rated output power (5S)		
Output Voltage Level	230VAC ± 3%		
Output Voltage Waveform	Pure Sine Wave		
Output Frequency Level	50Hz		
THDu	< 3%		
Switch Time	< 10ms		
Environment Parameters			
Operating Temperature	-20℃ to +65℃ (1)		
Storage Temperature	-25℃ to +70℃		
Relative Humidity	< 95% (N.C.)		
Altitude	4,000m (> 2,000m derating) (2)		
Ingress Protection	IP20		

Mechanical Parameters				
Dimensions (L × W × H)		307mm × 365mm × 92mm	319mm × 420mm × 92mm	
Weight		6.5kg	8.1kg	8.6kg
Others				
No-load Loss		< 16W		
Static Loss		< 6W		
Fast-charging Type-C		5/9/12/15VDC-3A, 20V-3.25A, MAX 65W		
Certifications	EMC	IEC 61000-6-1, IEC 61000-6-3; EN IEC 61000-6-1, EN IEC 61000-6-3	IEC 61000-6-2, IEC 61000-6-4, IEC 61000-3-2, IEC 61000-3-3; EN IEC 61000-6-2, EN IEC 61000-6-4, EN IEC 61000-3-2; EN 61000-3-3	
	Safety Compliance	IEC 62109-1, IEC 62109-2; EN 62109-1, EN 62109-2		
	RoHS	IEC 62321-5, IEC 62321-7, IEC62321-12		

(1) When ambient temperature exceeds 50℃, output load power and grid charging power will decrease. The temperature-power curve is as follows:



(2) Altitude derating: For every 1,000-meter increase in altitude above 2,000 meters, the load-carrying capacity decreases by 10%.

8 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 our official website: www.epever.com.

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