

BougeRV

User Manual

Pure Sine Wave Inverter

V1.1

Make The Journey



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1. Safety Instructions

Please follow the safety instructions for operation, the damage caused by not following the safety instructions shall be borne by the individual.

⚠ Please save these instructions

1-1. Inverter Safety Information

1. There are no user-serviceable parts inside. Do not disassemble or attempt to repair the inverter yourself.

2. This inverter is designed for **12V battery** systems only. Do not connect to higher voltage sources.

WARNING: The inverter is connected to a permanent energy source. Input and output terminals may remain energized even when the unit is powered off. Always disconnect all AC and DC connections before maintenance.

Do not operate the inverter in environments with a risk of gas or dust explosions.

1-2. Connection Security Information

1. The output power of the inverter must be higher than the maximum power of the electrical appliance;

The maximum power of equipment with large starting energy requirements, such as motors and air conditioners, cannot be higher than the output power of the inverter, and an additional power margin is required.

2. The positive and negative poles must be wired correctly;

The diameter of the connecting wire must be thick enough, and the length of the connecting wire should be minimized.

3. The inverter shell should be properly grounded to avoid personal injury due to leakage.

1-3. Installation Safety Instructions

- 1.It is highly recommended to install an external DC fuse and/or a circuit breaker on the DC input cables to prevent overcurrent.
- 2.Verify that the power source matches the product specifications and configuration described in this manual before applying power.
- 3.Install the unit in a well-ventilated, cool, and dry environment. Ensure at least 6 inches of clearance around the unit and keep ventilation ports unobstructed.
- 4.After installation, ensure all wiring connections are tight and secure. Loose connections can lead to excessive heat buildup and pose a fire hazard.
- 5.Consult the battery manufacturer's documentation to ensure compatibility. Always strictly follow the battery manufacturer's safety instructions.

1-4. Additional Safety Note

In order to protect the personal and property safety of users while using this product, the relevant information is provided in the manual and highlighted with the following symbols. If you encounter the following symbols in the manual, please read the relevant text carefully.

WARNING: Indicates a hazard of electric shock which, if not avoided, will result in equipment damage or personal electric shock/injury.

ATTENTION: Indicates a potential hazard that, if not avoided, could result in equipment damage.

NOTE: Indicates an important prompt during operation, failure to execute may cause an equipment failure alarm.

2. Technical After Services

BougeRV provides a **1-on-1** solar solution and an **18-month warranty** service.

If you have any questions during use, please feel free to contact us:

 (US/CA) **service@bougerv.com**

 (BougeRV Website) **support@bougerv.com**

 **1-408-656-8402** 9:00AM-6:00PM(CST) Mon-Fri

 **www.bougerv.com**

 **1-669-232-7427**

If you could provide the following relevant information to our email before contacting us; we can provide you with technical support solutions faster.

(1) Voltage of battery.

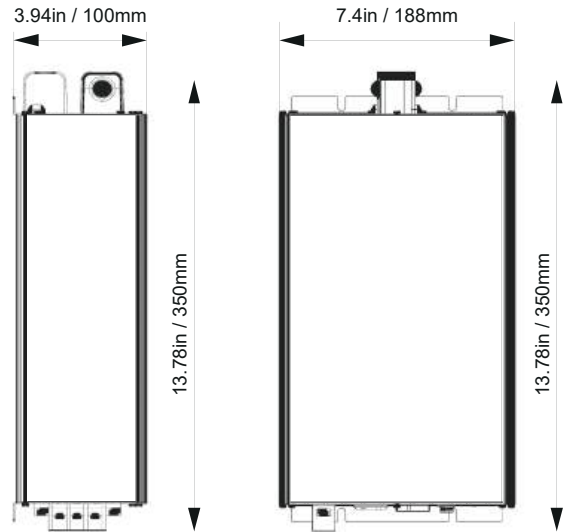
(2) Power of electrical appliance etc.

The company does not assume any responsibility for damages caused by the following circumstances.

1. Damage caused by improper use or use in an inappropriate place.
2. The current, voltage, and power of the load exceed the limit value of the inverter.
3. Damage caused by the working environment temperature exceeding the limited working temperature range.
4. Unauthorized disassembly and maintenance of the inverter due to arcing, fire, explosion and other accidents caused by failure to follow the inverter logo or manual instructions.
5. Force majeure.

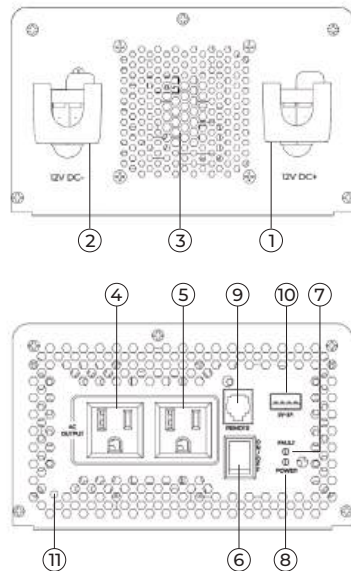
3. Appearance And Interface Description

3.1 SI121000

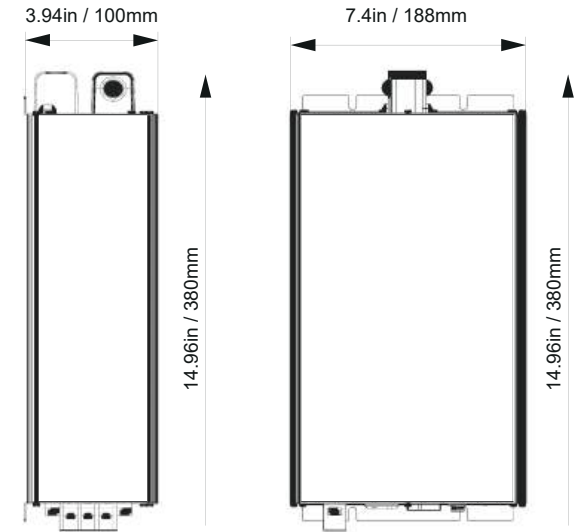


Interface Description:

- ① Positive electrode of battery input
- ② Negative electrode of Battery input
- ③ Cooling fan
- ④ AC output terminal 1 (15A)
- ⑤ AC output terminal 2 (15A)
- ⑥ ON/OFF switch
- ⑦ Fault indicator
- ⑧ Running indicator
- ⑨ RS485 communication interface
- ⑩ USB interface
- ⑪ Input grounding terminal

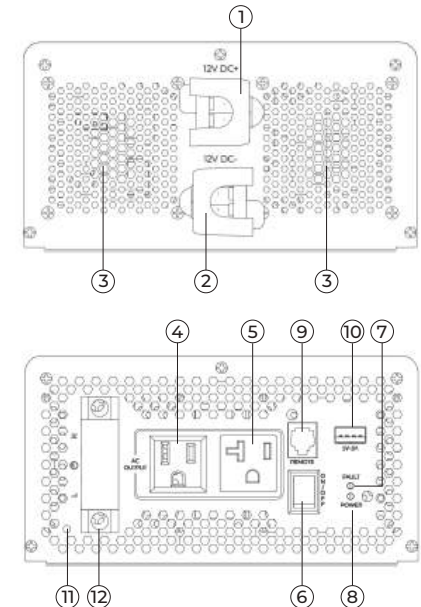


3.2 SI122000

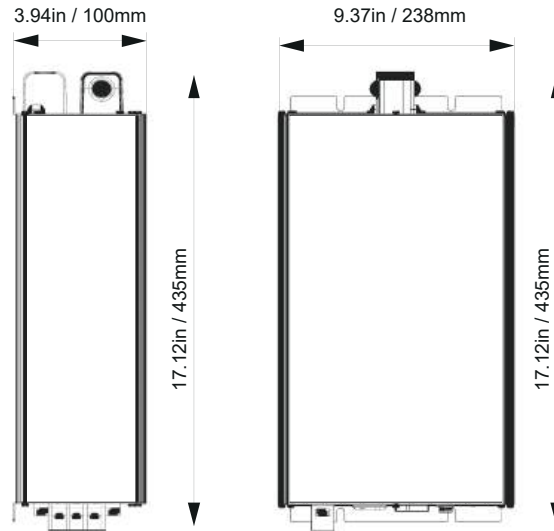


Interface Description:

- ① Positive electrode of battery input
- ② Negative electrode of Battery input
- ③ Cooling fan
- ④ AC output terminal 1 (15A)
- ⑤ AC output terminal 2 (20A)
- ⑥ ON/OFF switch
- ⑦ Fault indicator
- ⑧ Running indicator
- ⑨ RS485 communication interface
- ⑩ USB interface
- ⑪ Input grounding terminal
- ⑫ AC high power link port

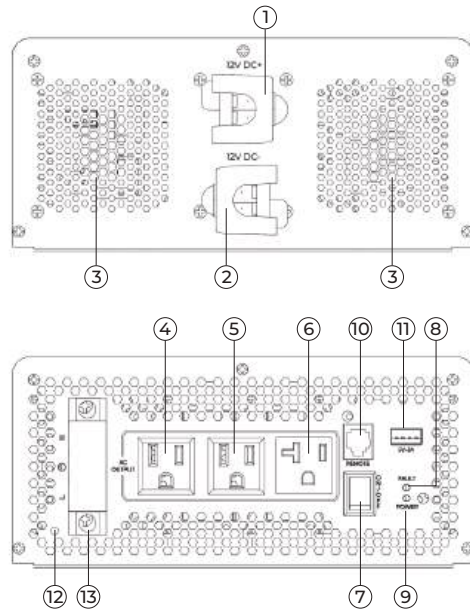


3.3 SI123000



Interface Description:

- ① Positive electrode of battery input
- ② Negative electrode of Battery input
- ③ Cooling fan
- ④ AC output terminal 1 (15A)
- ⑤ AC output terminal 2 (15A)
- ⑥ AC output terminal 3 (20A)
- ⑦ ON/OFF switch
- ⑧ Fault indicator
- ⑨ Running indicator
- ⑩ RS485 communication interface
- ⑪ USB interface
- ⑫ Input grounding terminal
- ⑬ AC high power link port



※AC Terminals (L/N/G): For 120V AC loads. Wiring must comply with NEC gauge requirements.

※Load safety: It is recommended to limit each AC output terminal to 80% of the output current; ensure that the total load of the inverter AC system is within the rated output power.

3.4 Additional Component



Interface Description :

- ① Battery-inverter cables*2 3FT(92cm) 2AWG(32mm²)
*3000W Inverter (SI123000): Not included. Recommended size: 4/0 AWG
- ② Ground Cable*1 3.2FT (100cm)
- ③ Wrench *1
- ④ Remote Control*1 19.6FT(600cm)
- ⑤ Product Manual*1
- ⑥ Replacement fuses

4. Installation and Wiring

4.1 Installation Steps

Step 1: Read the user manual carefully.

Step 2: Determine the installation position and heat dissipation space.

Determine the installation position (wall-mounted or horizontal installation mode can be used).

When installing the inverter, ensure that sufficient space is available and the inverter is removed

At least 200mm (7.9in) space should be left between the tuyere and the intake for air circulation.

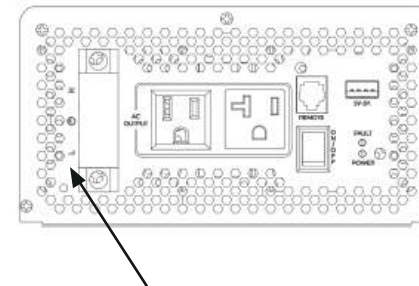
If installed in a closed container, ensure that heat dissipation can be dissipated through the container; otherwise, reduce the amount of heat used.

Step 3: Connect cables

1. The AC device shall be determined according to the continuous output power of the inverter, but the impact power of the AC device. Do not exceed the instantaneous impact power of the inverter. Otherwise, the inverter may be damaged.
2. Before wiring, set the inverter switch to OFF state.
3. During the wiring process, do not close the circuit breaker or safety, and confirm the lead connection of the electrodes of each component.
4. The battery end needs to be installed with insurance, which is selected according to the inverter input rated current of 2-2.5 times.
5. Ensure that the safe position is not more than 150mm away from the battery.
6. The input has no reverse connection protection. Before connecting the battery cable, ensure that the positive and negative terminals are correctly connected.

4.2 Wiring Sequence

4.2.1 Grounding Wire



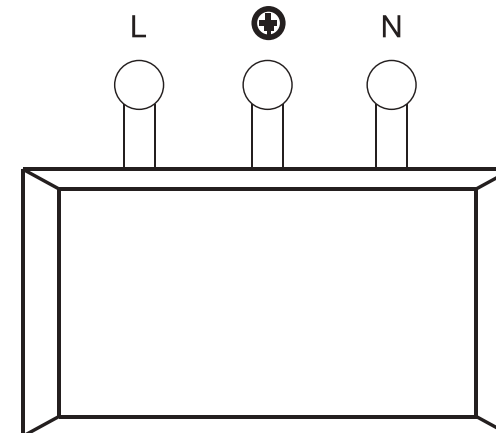
4.2.2 Battery Positive and Negative Wires

Input has no reverse connection protection. Before connecting the battery cable, ensure that the positive and negative terminals are correctly connected; otherwise, the inverter may be damaged!

4.2.3 AC Equipment

L: Live wire; N: Neutral wire; + : Ground wire

Please connect the ground wire first, then the fire wire L and neutral wire N.



5. App Usage Instructions

Built-in Bluetooth communication function can monitor the operation data, fault status and adjust the operation parameters of the controller in real time through mobile APP.

5.1 Download

Scan the QR code to download the application;



IOS & Android

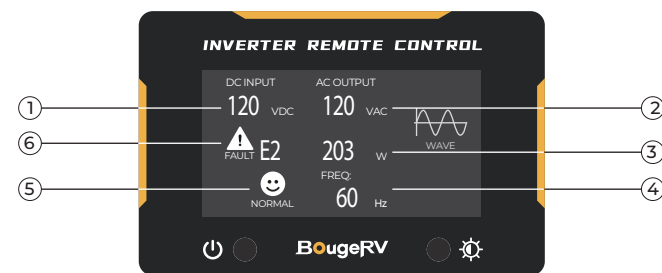
Search for “BougeRV” in the APP Store (for IOS devices) or Google Play (for Android devices).

5.2 Precautions For Using APP

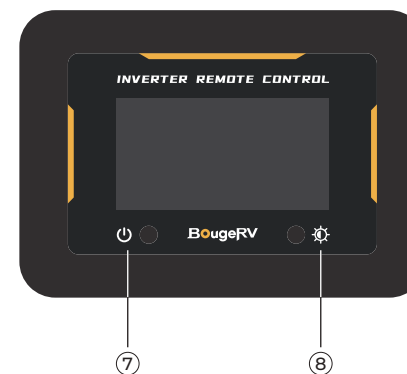
1. Make sure the inverter is turned on before connecting to Bluetooth.
2. The Bluetooth function of the mobile phone is available and turned on.
3. The GPS function is available and turned on in your phone.
4. Android firmware 8.0 and above, or IOS firmware 13.0 and above.

5. To ensure optimal system performance, keep the phone within 16 feet (5 m) of the inverter.

6. External Display



- ① Input voltage
- ② Output voltage
- ③ Output power
- ④ Output frequency
- ⑤ Working status
- ⑥ Error code



- ⑦ Short Press: Turn On/Off the Inverter
Long Press 3 Seconds: Inverter Recovery Reset
- ⑧ Short Press: Turn On/Off the Back light

7. Base Specification

Model	SI121000
Rated output power	1000W
Peak power	2000W (1s)
Output voltage	120VAC
Output frequency	50/60 Hz(default) 【Change via APP】
Rated input voltage	12VDC
The input voltage ranges	10.5V-15.5VDC
Output waveform	Pure sine wave
Output harmonic component (THD)	<5%
Maximun output efficiency	>90%
Full Load Efficiency	>85%
No-load Loss	≤0.6A
Battery low voltage alarm	10.5VDC (±0.3V)
Over-discharge voltage	10VDC (±0.3V) 【10-12V Change via APP】
Overload power	1200W
Overvoltage	15.5VDC (±0.3V)
Over temperature protect	≥167°F (75°C)
Over-temperature protection recovery	≤131°F (55°C)
Communication Port	RS485 (Remote Control) Bluetooth (APP)
Fan start-up temp	≥113°F (45°C) / ≥40% load
USB port	18W*1 (5V3.4A,9V2A,12V1.5A)
Protection function	1 Input over-voltage 2 Over-discharge protection 3 Output overload 4 Short-circuit protection 5 Inverter overtemperature protection 6 Ground fault circuit protection
Operating ambient temperature range	14°F~104°F (-10°C~40°C)
Product size	13.78*7.4*3.94in / 350*188*100mm
weight	5.95 lb / 2.7kg

Model	SI122000
Rated output power	2000W
Peak power	4000W (1s)
Output voltage	120VAC
Output frequency	50/60 Hz(default) 【Change via APP】
Rated input voltage	12VDC
The input voltage ranges	10.5V-15.5VDC
Output waveform	Pure sine wave
Output harmonic component (THD)	<5%
Maximun output efficiency	>90%
Full Load Efficiency	>85%
No-load Loss	≤0.6A
Battery low voltage alarm	10.5VDC (±0.3V)
Over-discharge voltage	10VDC (±0.3V) 【10-12V Change via APP】
Overload power	2300W
Overvoltage	15.5VDC (±0.3V)
Over temperature protect	≥167°F (75°C)
Over-temperature protection recovery	≤131°F (55°C)
Communication Port	RS485 (Remote Control) Bluetooth (APP)
Fan start-up temp	≥113°F (45°C) / ≥40% load
USB port	18W*1 (5V3.4A,9V2A,12V1.5A)
Protection function	1 Input over-voltage 2 Over-discharge protection 3 Output overload 4 Short-circuit protection 5 Inverter overtemperature protection 6 Ground fault circuit protection
Operating ambient temperature range	14°F~104°F (-10°C~40°C)
Product size	14.96*7.4*3.94 in / 380*188*100mm
weight	8.4 lb / 3.8kg

Model	SI123000
Rated output power	3000W
Peak power	6000W (1s)
Output voltage	120VAC
Output frequency	50/60 Hz(default) 【Change via APP】
Rated input voltage	12VDC
The input voltage ranges	10.5V-15.5VDC
Output waveform	Pure sine wave
Output harmonic component (THD)	<5%
Maximun output efficiency	>90%
Full Load Efficiency	>85%
No-load Loss	≤1A
Battery low voltage alarm	10.5VDC (±0.3V)
Over-discharge voltage	10VDC (±0.3V) 【10-12V Change via APP】
Overload power	3200W
Overvoltage	15.5VDC (±0.3V)
Over temperature protect	≥167°F (75°C)
Over-temperature protection recovery	≤131°F (55°C)
Communication Port	RS485 (Remote Control) Bluetooth (APP)
Fan start-up temp	≥113°F (45°C) / ≥40% load
USB port	18W*1 (5V3.4A,9V2A,12V1.5A)
Protection function	1 Input over-voltage 2 Over-discharge protection 3 Output overload 4 Short-circuit protection 5 Inverter overtemperature protection 6 Ground fault circuit protection
Operating ambient temperature range	14°F~104°F (-10°C~40°C)
Product size	17.12*9.37*3.94in / 435*238*100mm
weight	12.79 lb / 5.8kg

8. Indicators And Alarms

No.	Protection Status	Display Code	Indicator Status	Alarm Sound
1	Low Voltage Alarm	N/A	Green ON, Red OFF	1 beep (repeating cycle)
2	Undervoltage Protection	E1	Green OFF, Red Flashing	2 beeps (repeating cycle)
3	Overvoltage Protection	E2	Green OFF, Red Flashing	3 beeps (repeating cycle)
4	Overload Protection	E3	Green OFF, Red Flashing	5 beeps (repeating cycle)
5	Short Circuit Protection	E4	Green OFF, Red Flashing	6 beeps (repeating cycle)
6	Over-temperature Protection	E5	Green OFF, Red Flashing	4 beeps (repeating cycle)
7	Ground fault circuit protection (GFCI)	E6	Green OFF, Red Flashing	7 beeps (repeating cycle)

9. Error Code

ID	Error Code	Fault / Problem	Solution / Remedy	Remarks
1	E1	Low Battery Protection	1. Charge the battery until its voltage at least 2V higher than the set overdischarge voltage to recover. 2. If the error persists after recharging, the battery may be degraded or damaged. Please perform a diagnostic test or replace the battery.	
2	E2	Over-Voltage Protection	1. Reduce input voltage to 15.0V to resume. 2. Note: If the error continues at normal voltage, check your charge controller or replace the battery.	
3	E3	Overload Protection	The load exceeded the 2300W limit. Reduce total load to below 2300W and restart the inverter.	
4	E4	Short Circuit Protection	1. Check if the connected appliance is damaged. 2. Inspect the AC outlet for a Hot-to-Neutral short circuit.	
5	E5	Over-Temperature Protection	Temperature reached 75°C. Reduce load and improve ventilation. The unit resumes when it cools to 65°C (Fan continues running during cooling).	
6	E6	Ground Fault Protection	Current leakage detected (>30mA). Inspect if the Hot or Neutral wires are incorrectly connected to the Ground wire.	

10. FAQ

Q1: When I have some problems in the process of using the inverter, what information can I provide to BougeRV to provide me with technical support faster and better?

A1 Send the following information to the email,
 ① The connection method of the inverter and battery.
 ② The voltage and battery type of the battery.
 ③ The display data/app data of the inverter.
 ④ Connection from battery to inverter and inverter to the loads.

If the above information can be provided with pictures or videos, BougeRV can provide you with technical support faster.

Q2: Can I use the inverter with a 24 V system?

A2: No. This model can only work with a 12V battery system.

Q3: Can I use this inverter to charge my batteries?

A3: No. The BougeRV 12VDC to 120VAC inverter can only convert DC power to AC power. Please check the BougeRV Pure Sine Wave Inverter Charger.

Q4: How to check the power consumption of this inverter?

A4: This inverter has a built-in Bluetooth module, and parameters can be set and viewed on the mobile APP.

Q5: Why does the inverter suddenly disconnect during work?

A5: 1. The battery voltage is low, start the over-discharge protection, and it can work normally after recharging the battery;

2. Battery overcurrent. Most batteries are discharged at 1C(1C discharge refers to: The max discharge current of a 100AH battery is 100A, and the max discharge current of a 50AH battery is 50A.), and a 1500W electrical appliance connected to a 2000W inverter connected to 12V 100AH will cause overcurrent.

Because after connecting a 1500W electrical appliance, the inverter needs to get $1500W/12.8V=117.19A > 100A$ from the battery. In this case, the battery will start protection and disconnect from other devices.

Connecting batteries in parallel to increase the current can solve this problem.

3. The power of the electrical appliance is greater than the rated output power of the inverter. For example, using the 2000W inverter to carry a 2500W high-power electrical appliance cannot work. At the same time, the inverter can withstand a maximum instantaneous impact power of 4000W. This means that even if the rated power of the electrical appliance is less than 2000W, excessive instantaneous power will cause abnormal operation and even damage the inverter.

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