



# PURE SINE WAVE INVERTER

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## USER MANUAL



NP260; NP400;

NP600; NP800; NP1000

NP1200; NP1500; NP2000

NP2500; NP3000; NP3500

NP4000; NP5000



# Contents

<b>Important safety instructions</b>	<b>1</b>
<b>1 Overview</b>	<b>5</b>
<b>2 Characteristics</b>	<b>6</b>
<b>3 Naming rule</b>	<b>11</b>
<b>4 Connection diagram</b>	<b>12</b>
<b>5 Remote meter(Optional)</b>	<b>14</b>
5.1 Appearance	14
5.2 Status display	14
5.3 Buttons	15
5.4 LCD interface	15
5.5 Settings	15
5.6 Error code	16
<b>6 Installation</b>	<b>17</b>
6.1 Attentions	17
6.2 Wire size and circuit breaker	17
6.3 Mounting	19
<b>7 Protections</b>	<b>26</b>
<b>8 Troubleshooting</b>	<b>28</b>
<b>9 Maintenance</b>	<b>29</b>
<b>10 Specifications</b>	<b>30</b>
<b>Annex I Disclaimer</b>	<b>43</b>








# Important safety instructions


## Please reserve this manual for future review.

This manual contains all the instructions about safety, installation, and operation for the NPower series pure sine wave inverter (in the following, referred to as the inverter).

### 1. Explanation of symbols

To enable the user to use the product efficiently and ensure personal and property safety, please read the related words carefully when encountering the following symbols in the manual.

Symbol	Definition
<b>TIP</b>	Indicate any practical advice for reference.
	<b>IMPORTANT:</b> Indicates a critical tip during the operation, if ignored, may cause the device to run in error.
	<b>CAUTION:</b> Indicates potential hazards, if not avoided, may cause the device damaged.
	<b>WARNING:</b> Indicates the danger of electric shock, if not avoided, would cause casualties.
	<b>WARNING HOT SURFACE:</b> Indicates the risk of high temperature, if not avoided, would cause scalds.
	Read the user manual carefully before any operation.

 <b>WARNING</b>	The entire system should be installed by professional and technical personnel.
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### 2. Requirements for professional and technical personnel

- Professionally trained;
- Familiar with related safety specifications for the electrical system;
- Read the entire user manual to get related safety cautions.


### 3. Professional and technical personnel is allowed to do

- Install the inverter to the specified location;
- Test-run before installation;
- Operate and maintain the inverter.


### 4. General installation notes


 <b>IMPORTANT</b>	<p>When you receive the inverter, check whether there is any damage in transportation. Contact the transportation company, our local distributor, or our company for any problem.</p>
 <b>CAUTION</b>	<ul style="list-style-type: none"> <li>• When placing or moving the inverter, follow the instructions in the manual.</li> <li>• When installing the inverter, evaluate whether the operation area exists arc danger.</li> <li>• The inverter needs to be connected to a battery. The battery's minimum capacity (Ah) is recommended to be five times the current that equals the inverter's rated output power divided by the battery's voltage.</li> </ul>
 <b>WARNING</b>	<ul style="list-style-type: none"> <li>• Keep the inverter out of the reach of children.</li> <li>• This inverter is an off-grid type. It is strictly prohibited to connect the inverter to the grid. Otherwise, the inverter will be damaged.</li> <li>• This inverter is only allowed for stand-alone operation. It is prohibited to connect multiple units in parallel or series. Otherwise, the inverter will be damaged.</li> </ul>

#### 5. Safety cautions for mechanical installation




 <b>WARNING</b>	<ul style="list-style-type: none"> <li>• Before installation, ensure the inverter has no electrical connection.</li> <li>• Confirm enough heat dissipation space for the inverter before installation. Do not install the inverter in a harsh environment such as humid, salt spray, corrosion, greasy, flammable, explosive, or dust accumulation.</li> </ul>
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#### 6. Safety cautions for electrical connection

 <b>CAUTION</b>	<ul style="list-style-type: none"> <li>• Check whether wiring connections are tight to avoid the danger of heat accumulation due to loose connections.</li> <li>• The protective grounding is connected to the ground. The cross-section of the wire should not be less than 4mm<sup>2</sup>.</li> <li>• The DC input voltage must strictly follow the parameter table. Too high or too low DC input voltage will affect the inverter's normal operation and damage it.</li> <li>• It is recommended that the connection length between the battery and the inverter be less than 3 meters. If greater than 3 meters, please reduce the current density of the connection wire.</li> <li>• A fuse or breaker should be used between battery and Inverter; the fuse or</li> </ul>
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	<p>breaker's rated current should be twice the inverter rated input current.</p> <ul style="list-style-type: none"> <li>• DO NOT install the inverter close to the flooded lead-acid battery because the terminals' sparkle may ignite the hydrogen released by the battery.</li> </ul>
 <b>WARNING</b>	<ul style="list-style-type: none"> <li>• The AC output terminal is only for the load connection. Do NOT connect it to another power source or utility. Otherwise, the inverter will be damaged. Turn off the inverter when connecting loads.</li> <li>• 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.</li> <li>• Do not connect battery chargers or other similar products to the input terminal of the inverter. Otherwise, the inverter will be damaged.</li> </ul>

#### 7. Safety cautions for inverter operation

 <b>WARNING</b> <b>HOT</b> <b>SURFACE</b>	<p>When the inverter is working, the cover temperature is very high because of the accumulated heat; please do not touch it.</p>
 <b>CAUTION</b>	<p>When the inverter is running, please do not open the cabinet.</p>
 <b>WARNING</b>	<p>The inverter's AC output is of high voltage, do not touch the wiring connection to avoid electric shock.</p>

#### 8. The dangerous operations which would cause electric arc, fire or explosion


- Touch the wire end that hasn't been insulation treated and maybe electriferous.
- Touch the wiring copper row, terminals, or internal modules of the inverter that may be electriferous.
- The connection of the power cable is loose.
- Screw or other spare parts inadvertently falls into the inverter.
- Improper operations by untrained non-professional or technical personnel.

 <b>WARNING</b>	<p>Once an accident occurs, it must be handled by professional and technical personnel. Improper operations would cause more serious accidents.</p>
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#### 9. Safety cautions for stopping the inverter

- After the inverter stop running for five minutes, the internal conductive modules could be touched.
- The inverter is allowed to restart after removing the faults, which affects safety performance.

- There are no serviceable parts inside. If any maintenance service is required, please contact our service personnel.

 <b>WARNING</b>	Do NOT touch or open the shell after the inverter is powered off within ten minutes.
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#### 10. Safety cautions for inverter maintenance

- It is recommended to check the inverter with testing equipment to ensure there is no voltage and current.
- When conducting 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.
- An improper operation of the inverter may cause personal injury or equipment damage.
- Please wear an anti-static wrist strap to prevent static damage or avoid unnecessary contact with the circuit board.



# 1 Overview

Based on a full-digital intelligent technology, the NPower series is a pure sine wave inverter, converting 12/24/48V DC power to 220/230V AC power. With advanced SPWM technology, voltage-current double closed-loop control, and completely isolated inverter technology, the NPower has high-quality electrical parameters and a stronger ability to resist impact load. The input terminal's surge prevention helps meet the lithium battery's special requirements and ensures the inverter's safety and reliability.

The cage is designed with a galvanized board of high strength and corrosion resistance.

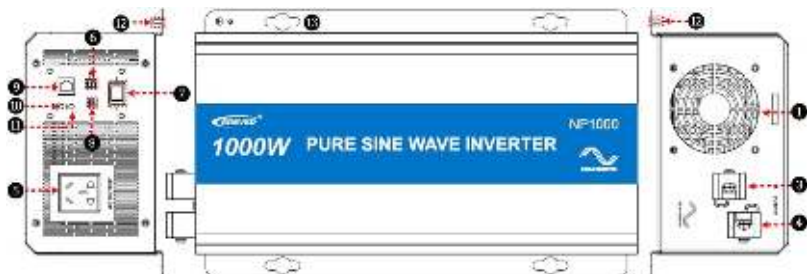
With high reliability, high efficiency, complete protection function, easy installation and operation, the inverter is suitable for AC loads of household appliances, power tools, industrial equipment, electronic audio and video, and solar PV power generation system(such as vehicle inverter application, solar RV, solar household, solar yacht, and solar power station, etc.)

## Features:

- Advanced SPWM technology and pure sine wave output
- Full digital double closed-loop control to enhance the load capacity
- Completely isolated inverter technology for the input and output
- Anti-surge design to support the lithium battery system perfectly
- Lower output harmonic distortion (THD≤3%)
- Excellent EMC design for the AC output to prevent interference of connected equipment
- Selectable output voltage(220/230VAC) and frequency(50/60Hz) by the DIP switch
- Extensive protection: input reverse polarity, input over voltage, input low voltage, output overload, output short circuit, and overheating
- Remote control and monitor the inverter by APP or PC software
- Configurable input under voltage and input under voltage reconnect voltage via the APP or PC software
- Set the inverter's ID via the APP or PC software to monitor several inverters.
- Adopt a Galvanized board of high strength and strong corrosion resistance for the cage
- Selectable output terminal: Chinese dual-socket, Australia/New Zealand, European, Universal, and Terminal
- Display running status by the local device(only NP4000-22(T) and NP5000-42(T)), optional external remote meter
- Easy maintenance and repair

## 2 Characteristics

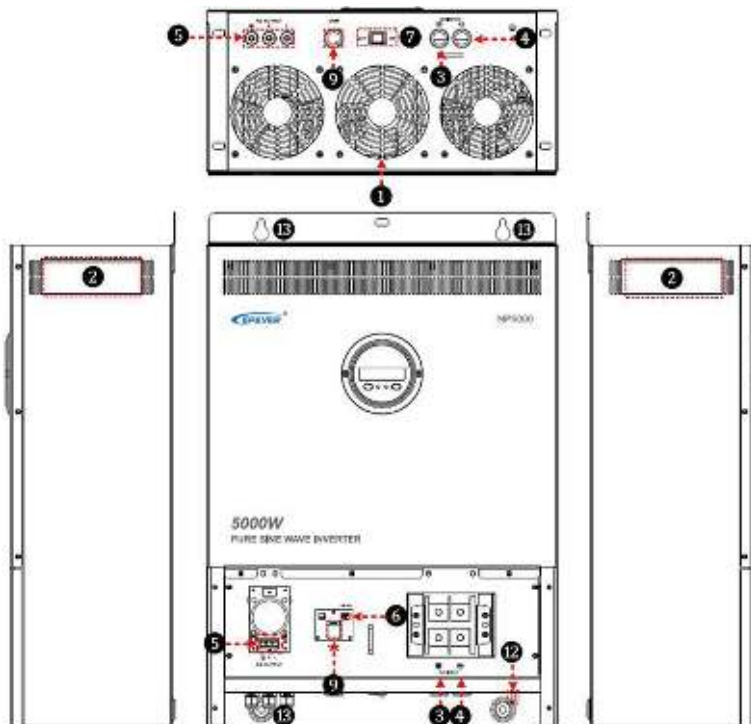
- NP260/NP400/NP600/NP800/NP1000/NP1200



- NP1500/NP2000/NP2500/NP3000/NP3500, NP4000-42



➤ NP4000-22, NP5000-42



**CAUTION**

The appearance varies with different product models; please refer to the actual product appearance.

①	Ventilation fan <sup>(1)</sup>	⑧	Mode switch <sup>(3)</sup>
②	Handle	⑨	RS485 communication port <sup>(4)</sup>
③	DC input terminal positive	⑩	Working indicator(green) <sup>(5)</sup>
④	DC input terminal negative	⑪	Fault indicator(red) <sup>(5)</sup>
⑤	AC output port <sup>(2)</sup>	⑫	Grounding terminal
⑥	External switch connection point	⑬	Mounting hole size
⑦	AC output switch		

**(1) Ventilation fan**

- The cooling fan is automatically turned on if the inverter meets any condition below.

- 1) Heat sink temperature is higher than 45°C
- 2) Internal temperature is higher than 45°C
- 3) The output power is higher than the defined power, see the table below:

Models	Instruction
NP260-11; NP260-12; NP260-21; NP260-22; NP400-12; NP400-22; NP600-11; NP600-12; NP600-21; NP600-22; NP800-12; NP1000-11; NP1000-21; NP1000-22; NP1000-41; NP1000-42; NP1200-12; NP1200-22; NP2500-11; NP2500-21; NP2500-41	Internal temperature is higher than 10°C, and the output power is higher than 50% of the continuous output power.
NP1500-12; NP1500-22; NP2000-11; NP2000-12; NP2000-21; NP2000-22; NP2000-41; NP2000-42; NP2500-12; NP2500-22; NP2500-42; NP3000-22; NP3000-42; NP3500-42; NP4000-22; NP5000-42	Internal temperature is higher than 10°C, and the output power is higher than 1000W
NP4000-42	Internal temperature is higher than 10°C, and the output power is higher than 2000W

● **The cooling fan is automatically turned off when the inverter meets all the conditions below.**

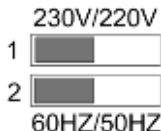
- 1) Heat sink temperature is lower than 40°C
- 2) Internal temperature is lower than 40°C
- 3) The output power is lower than the defined power, see the table below:

Models	Instruction
NP260-11; NP260-12; NP260-21; NP260-22	The output power is lower than 80W
NP400-12; NP400-22	The output power is lower than 150W
NP600-11; NP600-12; NP600-21; NP600-22	The output power is lower than 200W
NP800-12; NP1000-11; NP1000-21; NP1000-41; NP1000-42	The output power is lower than 300W
NP1000-22	The output power is lower than 400W
NP1200-12; NP1200-22	The output power is lower than 500W
NP2000-11; NP2000-21; NP2000-41	The output power is lower than 600W

NP2500-11; NP2500-21; NP2500-41	The output power is lower than 750W
NP1500-12; NP1500-22; NP2000-12; NP2000-22; NP2000-42; NP2500-12; NP2500-22; NP2500-42; NP3000-22; NP3000-42; NP3500-42; NP4000-22; NP5000-42	The output power is lower than 800W
NP4000-42	The output power is lower than 1200W



(2) The AC output port varies with different products. Please refer to chapter [3 Naming rule](#) for the specific supported types.

(3) Mode switch



When the switch of number 1 is on the 230V side, the output voltage is 230VAC; otherwise, it is 220VAC.

When the switch of number 2 is on the 60Hz side, the output frequency is 60Hz; otherwise, it is 50Hz.

 <b>WARNING</b>	DO NOT turn ON/OFF the mode switch when the inverter is working.
 <b>CAUTION</b>	Both the output frequency and voltage change are available after restarting the inverter.

(4) RS485 communication port



The RJ45 port pin definition is shown below:

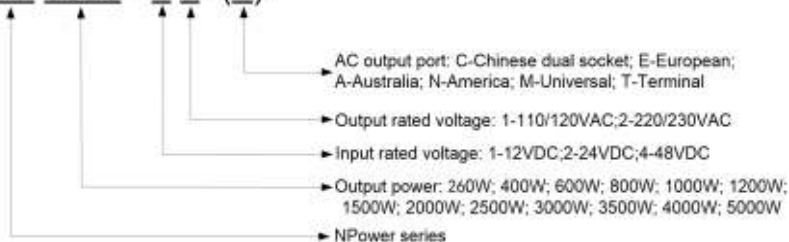
Pin	Definition	Instruction	Pin	Definition	Instruction
1	+5VDC	5V/200mA	5	RS485-A	RS485-A
2	+5VDC		6	RS485-A	
3	RS485-B	RS485-B	7	GND	Power GND
4	RS485-B		8	GND	

**(5) LED indicator and buzzer**







<b>Working indicator</b>	<b>Fault indicator</b>	<b>Buzzer</b>	<b>Status</b>
Green super flashing	Red off	No beeps	Standby
Green on solid	Red off	No beeps	Output is normal
Green slowly flashing	Red off	Beeps	Input under voltage
Green fast flashing	Red off	Beeps	Input over voltage
Green on solid	Red on solid	Beeps	Over temperature
Green off	Red fast flashing	Beeps	load short circuit
Green on solid	Red slowly flashing	Beeps	Overload
Green off	Red off	Beeps	Output voltage abnormal

### 3 Naming rule

NP 5000 - 4 2 -(T)



#### Explanations for the AC output port:

Suffix	Instruction	Figure	Suffix	Instruction	Figure
C	Chinese dual-socket		E	European socket	
A	Australia socket		N	American Socket	
M	Universal socket		T	Terminal	

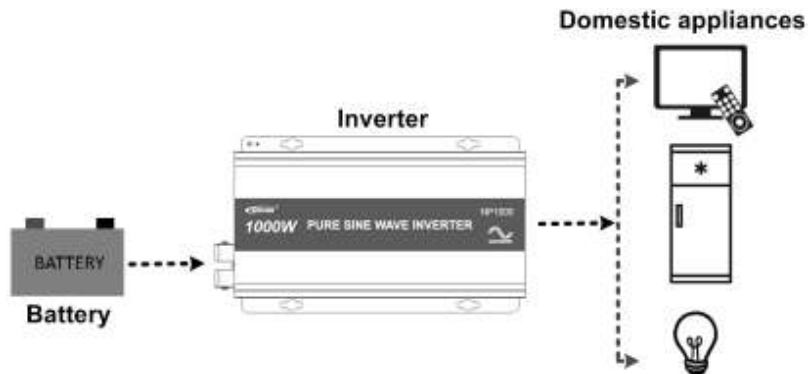


**CAUTION**

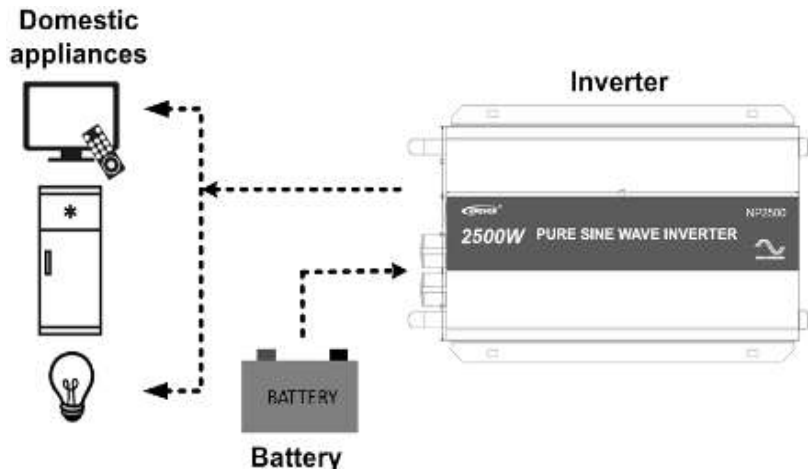
For detailed product model Vs. AC output port; please refer to the "*NPower Model List*".

## 4 Connection diagram

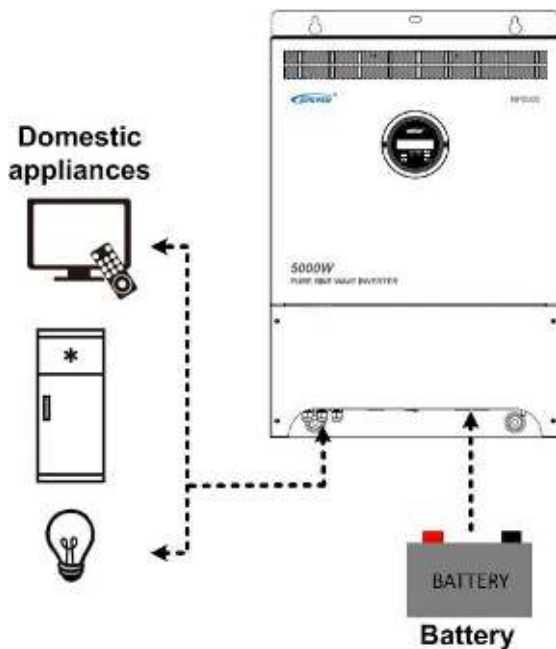
- NP260/NP400/NP600/NP800/NP1000/NP1200



- NP1500/NP2000/NP2500/NP3000/NP3500, NP4000-42







**CAUTION**

Connect the DC input directly to the battery port is recommended. DO NOT connect to the battery terminal of the controller. Otherwise, the charging frequency spikes of the controller may lead to over-voltage protection of the inverter.

## 5 Remote meter(Optional)

### 5.1 Appearance



①	LCD★	④	Working status indicator(Blue)
②	UP/Setting button	⑤	DOWN/Enter button Output ON/OFF button
③	Fault indicator(red)	⑥	Fixing screws




★ The display screen can be viewed clearly when the angle between the end-user's horizontal sight and the display screen is within 90°. If the angle exceeds 90°, the information on the display screen cannot be viewed clearly.


### 5.2 Status display

Working status indicator	Fault indicator	Buzzer	Status
Blue ON solid	Red OFF	No beeps	Output voltage normal
Blue slowly flashing(1/4Hz)	Red OFF	Buzzer beeps	Input under voltage
Blue fast flashing (1Hz)	Red OFF	Buzzer beeps	Input over voltage
Blue OFF	Red ON solid	Buzzer beeps	Inverter over temperature Heat sink over temperature
Blue OFF	Red fast flashing (1Hz)	Buzzer beeps	Load short circuit
Blue ON solid	Red slowly flashing(1/4Hz)	Buzzer beeps	Overload



Blue OFF	Red OFF	Buzzer beeps	Output voltage abnormal
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### 5.3 Buttons

	Click	Move up
	Press for 2s	In the real-time interface, press it for 2s to enter the setting interface. In the setting interface, press it for 2s to enter the parameters configuration interface.
	Click	Move down
	Press for 2s	In the real-time interface, press it to turn on/off the load output (default ON) Confirm the settings
	Click	In the setting interface, click them to exit the parameters configuration interface.
	Press for 2s	In the real-time interface, press them for 2s to clear the faults.

 <b>CAUTION</b>	The long buzzer beeps for the parameter confirming and short beeps for other button operations.
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### 5.4 LCD interface

Click  or  to browse the real-time interface.



### 5.5 Settings


**Operation:**

**Step1:** In the real-time interface, press  for 2s to enter the setting interface.

**Step2:** Click  or  to select the parameter to be configured.

**Step3:** Press  for 2s to enter the configuration interface of the specified parameter.

**Step4:** Click  or  to configure the parameter value.

**Step5:** Press  for 2s to confirm the configuration.

**Step6:** Click  +  to exit the current interface.

Display	Parameters	Default	User define
⚙️ VPT	Output voltage class <sup>①</sup>	220VAC	220VAC/ 230Vac
		110VAC	110VAC/ 120VAC
⚙️ FRE	Output frequency class <sup>①</sup>	50Hz	50Hz/60Hz
⚙️ BLT	LCD backlight time	30s	30s/ 60s/100s(ON solid)
⚙️ LVD	Low voltage disconnect voltage <sup>②</sup>	12V: 10.8V	12V: 10.5V~14.2V; step size 0.1V
		24V: 21.6V	24V: 21V-30.2V; step size 0.1V
		48V: 43.2V	48V: 42V-62.4V; step size 0.1V
⚙️ LVR	Low voltage reconnect voltage <sup>②</sup>	12V: 12.5V	12V: 11.5V~15.2V; step size 0.1V
		24V: 25V	24V: 22V-31.2V; step size 0.1V
		48V: 50V	48V: 43V-63.4V; step size 0.1V
⚙️ OVR	Over voltage reconnect voltage <sup>②</sup>	12V: 14.5V	12V: 11.5V~15.2V; step size 0.1V
		24V: 29V	24V: 22V-31.2V; step size 0.1V
		48V: 58V	48V: 43V-63.4V; step size 0.1V
⚙️ OVD	Over voltage disconnect voltage <sup>②</sup>	12V: 16V	12V: 12.5V~16.2V; step size 0.1V
		24V: 32V	24V: 23V-32.2V; step size 0.1V
		48V: 64V	48V: 44V-64.4V; step size 0.1V

- ① After configuring the parameters marked with ①, the inverter will restart automatically. It will resume work according to the new parameter value.
- ② For the parameter user defines, please refer to the input voltage rules in Chapter 7 Protections. Otherwise, the parameter setting will not succeed.

## 5.6 Error code

Error code	Faults	Buzzer
ΔOTP	Inverter over temperature Heat sink over temperature	Five beeps
ΔIOV	Input over voltage	
ΔILV	Input low voltage	
ΔOSC	Output short circuit	
ΔOOL	Output overload	
ΔOVA	Output voltage abnormal	

# 6 Installation

## 6.1 Attentions

- 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.
- Loose connections and corroded wires may result in high heat that can melt wire insulation, burn surrounding materials, or even cause a fire. Ensure tight connections and use cable clamps to secure cables and prevent them from swaying in motion.
- Please follow the parameter list to connect the DC input, even though the inverter has a high range of DC input voltages. Too high or too low may cause the inverter to stop working, even damage the inverter (Surge voltage less than 20V for 12V system, 40V for 24V system, 80V for 48V system)
- Select the system connection cables according to the current density no higher than 5A/mm<sup>2</sup>. (Following the National Electrical Code Article 690, NFPA70).
- For outdoor installation, keep out of the direct sunshine and rain infiltration.
- High voltage still exists inside the inverter after turning off the switch. Do not open or touch the internal devices, and wait ten minutes before conducting related operations.
- Do not install the inverter in a harsh environment such as humid, salt spray, corrosion, greasy, flammable, explosive, or dust accumulation.
- AC output is a high voltage; please do not touch the wiring connection.
- When the fan is working, please do not touch it to avoid injury.

## 6.2 Wire size and circuit breaker


Wiring and installation mode should comply with national and local electrical code requirements.

### ➤ Wire, terminals, and breaker selection for battery

Models	Battery wire size	Terminal	Breaker
NP260-11	6mm <sup>2</sup> /9AWG	RNB5.5-6	DC/2P—40A
NP260-21	4mm <sup>2</sup> /11AWG	RNB5.5-6	DC/2P—20A
NP260-12	6mm <sup>2</sup> /9AWG	RNB5.5-6	DC/2P-40A
NP260-22	4mm <sup>2</sup> /11AWG	RNB5.5-6	DC/2P-20A
NP400-12	10mm <sup>2</sup> /7AWG	RNB8-6S	DC/2P-63A
NP400-22	6mm <sup>2</sup> /9AWG	RNB5.5-6	DC/2P-32A
NP600-11	16mm <sup>2</sup> /5AWG	RNB14-8	DC/2P-80A
NP600-21	6mm <sup>2</sup> /9AWG	RNB8-8	DC/2P—40A


NP600-12	16mm <sup>2</sup> /5AWG	RNB14-8	DC/2P-80A
NP600-22	6mm <sup>2</sup> /9AWG	RNB8-8	DC/2P-40A
NP800-12	25mm <sup>2</sup> /3AWG	RNB22-6L	DC/2P-125A
NP1000-11	25mm <sup>2</sup> /3AWG	RNB22-6	DC/2P-125A
NP1000-21	10mm <sup>2</sup> /7AWG	RNB14-6	DC/2P-63A
NP1000-22	16mm <sup>2</sup> /5AWG	RNB14-6L	DC/2P-63A
NP1000-41	6mm <sup>2</sup> /9AWG	RNB8-8	DC/2P—63A
NP1000-42	6mm <sup>2</sup> /9AWG	RNB8-8	DC/2P-63A
NP1200-12	25mm <sup>2</sup> /3AWG	RNB22-6L	DC/2P-125A
NP1200-22	16mm <sup>2</sup> /5AWG	RNB14-6L	DC/2P-63A
NP1500-12	50mm <sup>2</sup> / 1/0AWG	RNB60-10	DC-80A(2P in parallel)
NP1500-22	25mm <sup>2</sup> /3AWG	RNB22-10	DC/2P-80A
NP2000-11★	25mm <sup>2</sup> /3AWG	RNB60-10	DC-125A(2P in parallel)
NP2000-12	50mm <sup>2</sup> / 1/0AWG	RNB60-10	DC-125A(2P in parallel)
NP2000-21	25mm <sup>2</sup> /3AWG	RNB22-10	DC/2P-125A
NP2000-22	25mm <sup>2</sup> /3AWG	RNB22-10	DC/2P-125A
NP2000-41	16mm <sup>2</sup> /5AWG	RNB14-10	DC/2P-63A
NP2000-42	16mm <sup>2</sup> /5AWG	RNB14-10	DC/2P-63A
NP2500-11★	25mm <sup>2</sup> /3AWG	RNB80-10	DC/3P-100A(3P in parallel)
NP2500-12★	25mm <sup>2</sup> /3AWG	RNB60-10	DC-100A(3P in parallel)
NP2500-21★	16mm <sup>2</sup> /5AWG	RNB38-10	DC-100A(2P in parallel)
NP2500-22★	16mm <sup>2</sup> /5AWG	RNB38-10	DC-100A(2P in parallel)
NP2500-41	16mm <sup>2</sup> /5AWG	RNB14-6	DC/2P-80A
NP2500-42	16mm <sup>2</sup> /5AWG	RNB14-10	DC/2P-63A
NP3000-22★	25mm <sup>2</sup> /3AWG	RNB60-10	DC-100A(2P in parallel)
NP3000-42	25mm <sup>2</sup> /3AWG	RNB22-10	DC/2P-100A
NP3500-42	25mm <sup>2</sup> /3AWG	RNB22-10	DC/2P-125A
NP4000-22★	25mm <sup>2</sup> /3AWG	RNB22-8(4 pcs)	DC/4P-125A or DC/2P-125A(2pcs)
NP4000-42	25mm <sup>2</sup> /3AWG	RNB22-10(2 pcs)	DC/2P-125A
NP5000-42	35mm <sup>2</sup> /1AWG	RNB38-8(2 pcs)	DC/2P-160A

★ According to the recommended battery wire size, 2 battery wires, connected in parallel, are necessary for NP2000-11, NP2500-21, NP2500-22, NP3000-22, and NP4000-22. 3 battery wires, connected in parallel, are necessary for NP2500-11 and NP2500-12.

 <b>IMPORTANT</b>	The above wire size and circuit breaker size are for reference only; please choose a suitable wire and circuit breaker according to the actual situation.
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➤ **Wire and breaker selection for AC output**

Models	Wire size	Breaker
NP260	1mm <sup>2</sup> /17AWG	AC/2P—6A
NP600	1mm <sup>2</sup> /17AWG	AC/2P—6A
NP800-*2	1mm <sup>2</sup> /17AWG	AC/2P—6A
NP1000-*1	1.5mm <sup>2</sup> /15AWG	AC/2P—10A
NP1000-*2	1mm <sup>2</sup> /17AWG	AC/2P—6A
NP1200-*2	1mm <sup>2</sup> /17AWG	AC/2P—6A
NP1500-*2	1mm <sup>2</sup> /17AWG	AC/2P—10A
NP2000-*1	2.5mm <sup>2</sup> /13AWG	AC/2P—20A
NP2000-*2	1.5mm <sup>2</sup> /15AWG	AC/2P—10A
NP2500-*1	4mm <sup>2</sup> /11AWG	AC/2P—32A
NP2500-*2	2.5mm <sup>2</sup> /13AWG	AC/2P—10A
NP3000-*2	2.5mm <sup>2</sup> /13AWG	AC/2P—16A
NP3500-*2	2.5mm <sup>2</sup> /13AWG	AC/2P—16A
NP4000-*2	4mm <sup>2</sup> /11AWG	AC/2P—25A
NP5000-*2	4mm <sup>2</sup> /11AWG	AC/2P—32A



 <b>IMPORTANT</b>	<ul style="list-style-type: none"> <li>• The wire size and terminal are for reference only. Use thicker wires to reduce the voltage drop and improve the system performance when the inverter and battery distance is further.</li> <li>• The above wire size and circuit breaker size are for recommendation only. Please choose a suitable wire and circuit breaker according to the actual situation.</li> </ul>
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## 6.3 Mounting

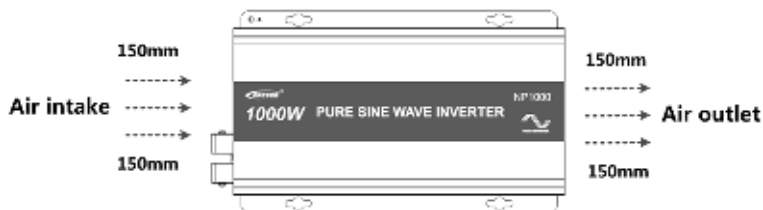
### Installation steps:

**Step1:** Professional personnel read this manual carefully.

**Step2:** Determine the installation location and heat-dissipation space.

 <b>IMPORTANT</b>	The inverter shall be installed in a place with sufficient airflow and a minimum clearance of 150mm from the upper and lower edges of the inverter to ensure natural thermal convection.
 <b>CAUTION</b>	The inverter shall be cooling through housing if installed in a closed box.

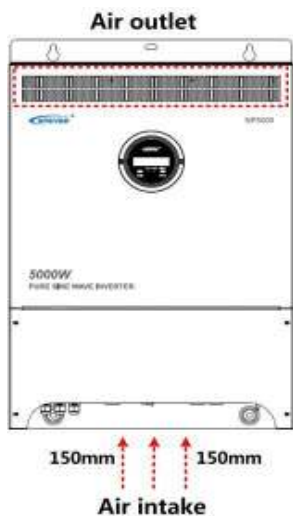
- NP260/NP400/NP600/NP800/NP1000/NP1200



- NP1500/NP2000/NP2500/NP3000/NP3500, NP4000-42





- NP4000-22, NP5000-42





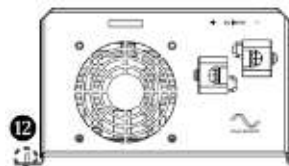
### Step3: Wiring

 <b>WARNING</b>	The AC equipment shall be determined by the continuous output power of the inverter. Still, the surge power must be lower than the instantaneous surge power of the inverter.
 <b>CAUTION</b>	<ul style="list-style-type: none"><li>• The switch of the inverter is off before wiring.</li><li>• DO NOT close the circuit breaker or fuse and ensure that the leads of "+" and "-" poles are correctly connected while wiring the inverter.</li><li>• A fuse, whose current is 1.25 to 2 times the inverter's rated current, must be installed on the battery side with a distance away from the battery not greater than 150mm.</li></ul>

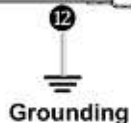
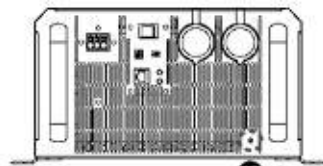
#### Wiring order:

##### ① Ground

- NP260~NP1200



- NP1500~NP3500, NP4000-42

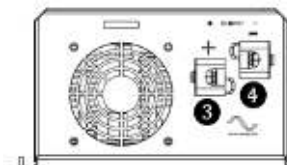


- NP4000-22, NP5000-42

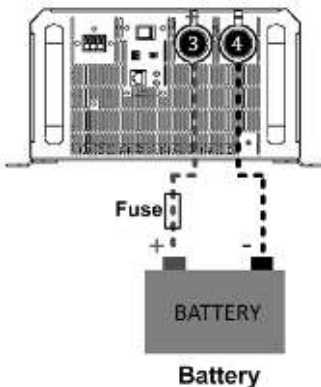


## 2 Battery

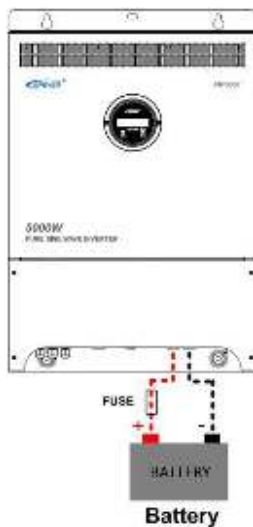
- NP260~NP1200



- NP1500~NP3500, NP4000-42

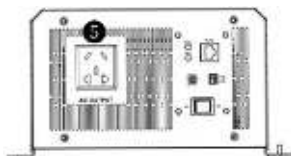


- NP4000-22, NP5000-42

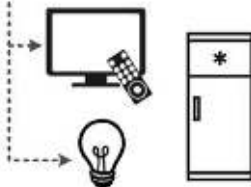
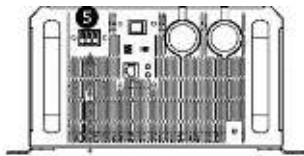


### ③ AC loads

- NP260~NP1200



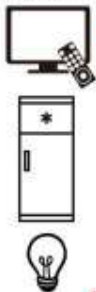
- NP1500~NP3500, NP4000-42



Domestic appliances

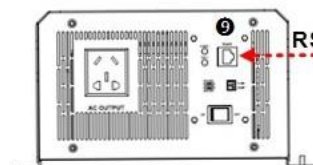
- NP4000-22, NP5000-42

Domestic  
appliances

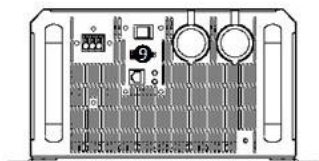


#### 4 Accessories

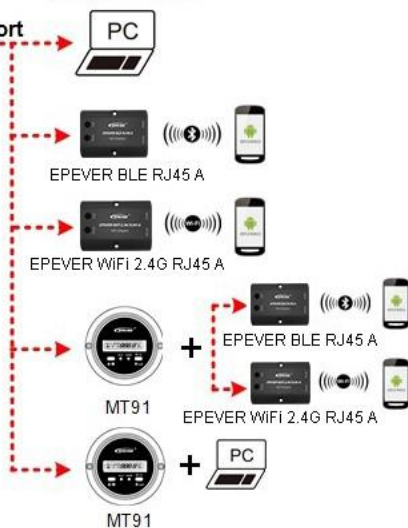
- NP260~NP1200



- NP1500~NP3500, NP4000-42



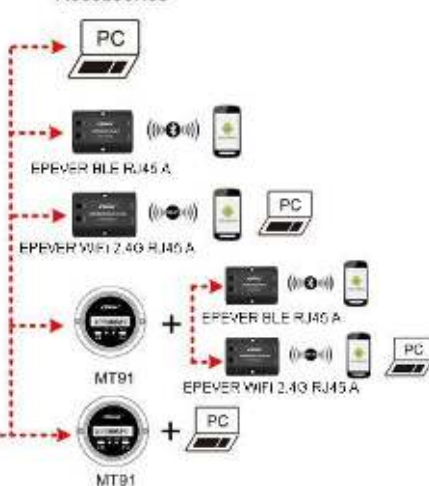
#### Accessories



- NP4000-22, NP5000-42



#### Accessories





**CAUTION**

Disconnect the system in the reverse order **4** **3** **2** **1**.

#### **Step4: Power on the inverter**

- (1) Switch on the input breaker or the fuse between the inverter and battery.
- (2) Turn on the power switch to start the inverter; the green indicator will be on state, and the AC output is normal.
- (3) Turn on the load one by one, and check the operation status of both inverter and load.



**CAUTION**

If there are different loads, it is suggested to turn on the loads with higher startup currents, such as television. After the loads work stably, turn on the loads with a lower startup current, such as an incandescent lamp.

- (4) If the fault indicator is red and the buzzer alarms when turning on the inverter, please immediately switch off the loads and inverter. Refer to chapter [8 Troubleshooting](#). After troubleshooting, please follow the above steps and operate again.

# 7 Protections

## 1) Input reverse polarity protection

The electronic circuit works to protect the inverter from damage during input reverse polarity. And the inverter will get right while the input is right.

## 2) Input voltage protection

- **The following rules must be followed when modifying the battery's input voltage parameters:**
  - A. Over voltage limiting voltage (16.2/32.2/64.4V)  $\geq$  Over voltage disconnect voltage  $\geq$  Over voltage reconnect voltage +1V.
  - B. Over voltage reconnect voltage  $\geq$  Low voltage reconnect voltage.
  - C. Low voltage reconnect voltage  $\geq$  Low voltage disconnect voltage +1V.
  - D. Low voltage disconnect voltage  $\geq$  Low voltage limiting voltage (10.5/21/42V).
- **Detail status is shown as the following when the input voltage protection occurs.**

Input voltage protection	Status
Over voltage protection	The output is switched OFF. The green indicator fast flashes. Buzzer beeps.
Over voltage reconnect	The green indicator is ON solid. The output voltage is normal.
Low voltage protection	The output is switched OFF. The green indicator slowly flashes. Buzzer beeps.
Low voltage reconnect	The green indicator is ON solid. The output voltage is normal.

## 3) Overload protection

$S=1.25P_e^{\text{®}}$ (S: Output power; $P_e$ : Rated power)	The output is OFF after the 60s Red indicator slowly flashing Buzzer sounds
$S=1.5P_e^{\text{®}}$ (S: Output power; $P_e$ : Rated power)	The output is OFF after 10s Red indicator slowly flashing Buzzer sounds

$S=1.8P_o^{\text{③}}$ (S: Output power; $P_o$ : Rated power)	The output is OFF after 3s Red indicator slowly flashing Buzzer sounds
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① When the overload protection is activated, the AC output will recover three times automatically (the first time delay 5s, the second time delays for 10s, and the third time delays for 15s). After then the AC output will not recover automatically after restarting the inverter.

#### 4) Load short circuit protection

Phenomenon	Instruction
The output is OFF immediately Red indicator slowly flashing Buzzer sounds	When the load short circuit protection is activated, the AC output will auto-recovery three times (the first time delay 5s, the second time delays for 10s, and the third time delays for 15s). After then the AC output would not auto-recovery after restarting the inverter.

#### 5) Over Temperature Protection

Phenomenon	Instruction
Inverter turns OFF	The heat sink or internal temperature is higher than some value.
Inverter turns ON	The heat sink or internal temperature is lower than some value.

## 8 Troubleshooting



### WARNING

DO NOT try to repair or maintain the inverter by yourself; it may cause danger.

Phenomenon	Possible reasons	Troubleshooting
Green indicator slowly flashing Buzzer sounds	DC input voltage under voltage	Suppose the DC input voltage goes lower than 10.8/21.6/43.2V. Adjust the input voltage to restore normally.
Green indicator fast flashing Buzzer sounds	DC input voltage overvoltage	Measure the DC input voltage if the voltage is lower than 16/32/64V. Adjust the input voltage to restore normally.
Red indicator slowly flashing Buzzer sounds	Overload	<ul style="list-style-type: none"><li>• Reduce the number of the AC load</li><li>• Restart the inverter</li></ul>
Red indicator fast flashing Buzzer sounds	Short circuit	<ul style="list-style-type: none"><li>• Check carefully loads connection, clear the fault.</li><li>• Restart the inverter</li></ul>
Red and green indicators on solid Buzzer sounds	Over temperature	Improve the ventilation quality, do NOT block the vent, cool the temperature around the power supply, and restart the inverter after the temperature drops. If still not working, please turn off some loads.



## 9 Maintenance

The following inspections and maintenance tasks are recommended at least two times per year for good performance.

- Make sure no block on airflow around the inverter. Clear up any dirt and fragments on the heat sink.
- Check all the naked wires to ensure insulation is not damaged by sun exposure, frictional wear, dryness, insects or rats, etc.
- Verify the indicator display is consistent with the actual operation.
- Confirm that terminals have no corrosion, insulation damage, high temperature, burnt/discolored sign, and tighten terminal screws to the suggested torque.
- Clear up dirt, nesting insects, and corrosion in time.
- Check and confirm that the lightning arrester is in good condition. Replace a new one in time to avoid damaging the inverter and other equipment.



**WARNING**

Risk of electric shock! Confirm all the power is turned off and all the capacitor's energy has been discharged before performing the above operations.

## 10 Specifications

### 110/120VAC output

Item	NP260-11	NP260-21	NP600-11	NP600-21
Continuous output power	260W@25°C, 200W@45°C		600W@45°C	
Surge power(5S)	400W		1200W	1000W
Output voltage	110/120VAC (±5%)			
Output frequency	50/60Hz±0.2%			
Output wave	Pure Sine Wave			
Output distortion THD	THD≤5%(Resistive load)			
Load power factor	0.2~1(Load power ≤ Continuous output power)			
Rated input voltage	12VDC	24VDC	12VDC	24VDC
Input voltage range	10.8~16.0VDC	21.6~32.0VDC	10.8~16.0VDC	21.6~32.0VDC
Output efficiency of 80% rated power <sup>①</sup>	82.9%	87.4%	82.5%	87.5%
Max. rated efficiency <sup>②</sup>	82.3%	86.0%	80.2%	85.6%
Max. output efficiency <sup>③</sup>	89.6%(67W)	90.2%(104W)	90.7%(150W)	91.9%(160W)
Surge current when power on	20A@25°C, V <sub>IN</sub> =12V	20A@25°C, V <sub>IN</sub> =24V	20A@25°C, V <sub>IN</sub> =12V	20A@25°C, V <sub>IN</sub> =24V
No-load current	<0.3A	<0.15A	<0.67A	<0.22A
Static Loss	<0.3W@12V	<0.4W@24V	<0.3W@12V	<0.4W@24V
RS485 com. port	5VDC/250mA(Non-isolated)			
<b>Mechanical parameters</b>				
Input terminal	M6		M8	
Dimension (L×W×H)	365×212×97mm		428×243×121mm	

Mounting size	220×193mm		260×220mm	
Mounting hole size	Φ7mm		Φ9mm	
Net Weight	6.5kg	6.4kg	10.8kg	10.2kg

① It means the output efficiency when the load power is 80% of the continuous output power under the rated DC input voltage. (25°C)

② It is measured in the condition of continuous output power and rated input voltage. (25°C)

③ It means the max. efficiency when the inverter is connected with different loads under the rated DC input voltage.

Item	NP1000-11	NP1000-21	NP1000-41
Continuous output power	1000W@25°C, 850W@45°C		1000W@45°C
Surge power(5S)	2000W		
Output voltage	110/120VAC (±5%)		
Output frequency	50/60Hz±0.2%		
Output wave	Pure Sine Wave		
Output distortion THD	THD≤5%(Resistive load)		
Load power factor	0.2~1(Load power ≤ Continuous output power)		
Rated input voltage	12VDC	24VDC	48VDC
Input voltage range	10.8~16.0VDC	21.6~32.0VDC	43.2~64.0VDC
Output efficiency of 80% rated power <sup>①</sup>	83.4%	88%	90.6%
Max. rated efficiency <sup>②</sup>	80.6%	85.7%	89.2%
Max. output efficiency <sup>③</sup>	92.2%(200W)	93.4%(250W)	94.3%(300W)
Surge current when power on	30A@25°C, V <sub>IN</sub> =12V	30A@25°C, V <sub>IN</sub> =24V	30A@25°C, V <sub>IN</sub> =48V
No-load current	<0.59A	<0.33A	<0.19A
Static Loss	<0.3W@12V	<0.4W@24V	<0.7W@48V
RS485 com. port	5VDC/300mA(Non-isolated)	5VDC/250mA(Non-isolated)	5VDC/300mA(Isolated)

Mechanical parameters			
Input terminal	M6		M8
Dimension (L×W×H)	511×268×139mm		452×268×139
Mounting size	300×245mm		270×245
Mounting hole size	Φ9mm		
Net Weight	16.1kg	16.0kg	14.0kg

- ① It means the output efficiency when the load power is 80% of the continuous output power under the rated DC input voltage. (25°C)
- ② It is measured in the condition of continuous output power and rated input voltage. (25°C)
- ③ It means the max. efficiency when the inverter is connected with different loads under the rated DC input voltage.

Item	NP2000-11	NP2000-21	NP2000-41
Continuous output power	2000W@45°C		
Surge power(5S)	4000W		
Output voltage	110/120VAC (±5%)		
Output frequency	50/60Hz±0.2%		
Output wave	Pure Sine Wave		
Output distortion THD	THD≤5%(Resistive load)		
Load power factor	0.2~1(Load power ≤ Continuous output power)		
Rated input voltage	12VDC	24VDC	48VDC
Input voltage range	10.8~16.0VDC	21.6~32.0VDC	43.2~64.0VDC
Output efficiency of 80% rated power <sup>①</sup>	84%	89%	89.4%
Max. rated efficiency <sup>②</sup>	82.5%	87.5%	87.7%
Max. output efficiency <sup>③</sup>	90.8%(500W)	93.9%(500W)	93.9%(500W)
Surge current when power on	20A@25°C, V <sub>IN</sub> =12V	20A@25°C, V <sub>IN</sub> =24V	20A@25°C, V <sub>IN</sub> =48V

No-load current	<1.9A	<0.5A	<0.3A
Static Loss	<0.6W@12V	<0.6W@24V	<1.8W@48V
RS485 com. port	5VDC/300mA(Non-isolated)	5VDC/300mA(Non-isolated)	5VDC/200mA(Isolated)
<b>Mechanical parameters</b>			
Input terminal	M10		
Dimension (L×W×H)	554×393×175mm		486×313×145mm
Mounting size	350×372mm		350×292mm
Mounting hole size	Φ9mm		
Net Weight	30.3kg	28.1kg	21.2kg

① It means the output efficiency when the load power is 80% of the continuous output power under the rated DC input voltage. (25°C)

② It is measured in the condition of continuous output power and rated input voltage. (25°C)

③ It means the max. efficiency when the inverter is connected with different loads under the rated DC input voltage.

Item	NP2500-11	NP2500-21	NP2500-41
Continuous output power	2500W@45°C		
Surge power(5S)	5000W		
Output voltage	110/120VAC (±5%)		
Output frequency	50/60Hz±0.2%		
Output wave	Pure Sine Wave		
Output distortion THD	THD≤6%(Resistive load)		
Load power factor	0.2~1(Load power ≤ Continuous output power)		
Rated input voltage	12VDC	24VDC	48VDC
Input voltage range	10.8~16.0VDC	21.6~32.0VDC	43.2~64.0VDC
Output efficiency of 80% rated power <sup>①</sup>	84.4%	89.1%	91.1%
Max. rated efficiency <sup>②</sup>	81.3%	86.8%	89.7%

Max. output efficiency <sup>③</sup>	90.9%(500W)	94%(500W)	94%(800W)
Surge current when power on	20A@25°C, V <sub>IN</sub> =12V	20A@25°C, V <sub>IN</sub> =24V	20A @25°C, V <sub>IN</sub> =48V
No-load current	<2.1A	<0.6A	<0.5A
Static Loss	<0.6W@12V	<0.6W@24V	<1.8W@48V
RS485 com. port	5VDC/300mA(Non-isolated)	5VDC/300mA(Non-isolated)	5VDC/200mA(Isolated)
<b>Mechanical parameters</b>			
Input terminal	M10		
Dimension (L×W×H)	584×393×175mm	604×393×175mm	549×328×175mm
Mounting size	350×372mm	350×372mm	350×307mm
Mounting hole size	Φ9mm		
Net Weight	32.5kg	32.7kg	26.5kg

① It means the output efficiency when the load power is 80% of the continuous output power under the rated DC input voltage. (25°C)

② It is measured in the condition of continuous output power and rated input voltage. (25°C)

③ It means the max. efficiency when the inverter is connected with different loads under the rated DC input voltage.

## 220/230VAC output

Item	NP260-12	NP260-22	NP400-12	NP400-22
Continuous output power	260W@25°C, 200W@45°C		400W@25°C, 350W@45°C	
Surge power(5S)	400W		700W	
Output voltage	220/230VAC (-8%~+3%)			
Output frequency	50/60Hz±0.2%			
Output wave	Pure Sine Wave			
Output distortion THD	THD≤3%(Resistive load)			
Load power factor	0.2~1(Load power ≤ Continuous output power)			

Rated input voltage	12VDC	24VDC	12VDC	24VDC
Input voltage range	10.8~16.0VDC	21.6~32.0VDC	10.8~16.0VDC	21.6~32.0VDC
Output efficiency of 80% rated power <sup>①</sup>	81%	84%	81%	85%
Max. rated efficiency <sup>②</sup>	79%	82%	79%	84%
Max. output efficiency <sup>③</sup>	89%(80W)	90%(100W)	90%(100W)	91%(100W)
Surge current when power on	20A@25°C, V <sub>IN</sub> =12V	20A@25°C, V <sub>IN</sub> =24V	20A@25°C, V <sub>IN</sub> =12V	20A@25°C, V <sub>IN</sub> =24V
No-load current	<0.4A	<0.3A	<0.5A	<0.3A
Static Loss	<0.3W@12V	<0.4W@24V	<0.3W@12V	<0.4W@24V
RS485 com. port	5VDC/250mA(Non-isolated)			
<b>Mechanical parameters</b>				
Input terminal	M6		M6	
Dimension (L×W×H)	365×212×97mm		386×215×99mm	
Mounting size	220×193mm		230×196mm	
Mounting hole size	Φ7mm		Φ7mm	
Net Weight	6.4kg	6.3kg	8.1kg	7.9kg

① It means the output efficiency when the load power is 80% of the continuous output power under the rated DC input voltage. (25°C)

② It is measured in the condition of continuous output power and rated input voltage. (25°C)

③ It means the max. efficiency when the inverter is connected with different loads under the rated DC input voltage.

Item	NP600-12	NP600-22	NP800-12	NP1000-22	NP1000-42
Continuous output power	600W@25°C, 500W@45°C		800W@45°C	1000W@45°C	
Surge power(5S)	1000W		1600W	2000W	
Output voltage	220/230VAC (-8%~+3%)	220/230VAC (±3%)	220/230VAC (-8%~+3%)	220/230VAC (±3%)	

Output frequency	50/60Hz±0.2%				
Output wave	Pure Sine Wave				
Output distortion THD	THD≤3%(Resistive load)				
Load power factor	0.2~1(Load power ≤ Continuous output power)				
Rated input voltage	12VDC	24VDC	12VDC	24VDC	48VDC
Input voltage range	10.8~16.0VDC	21.6~32.0VDC	10.8~16.0VDC	21.6~32.0VDC	43.2~64.0VDC
Output efficiency of 80% rated power <sup>①</sup>	81%	85%	83%	85%	90.8%
Max. rated efficiency <sup>②</sup>	80%	83%	81%	82%	89.4%
Max. output efficiency <sup>③</sup>	89%(200W)	92%(160W)	92%(100W)	92%(200W)	94.5%(300W)
Surge current when power on	20A@25°C, V <sub>IN</sub> =12V	20A@25°C, V <sub>IN</sub> =24V	20A@25°C, V <sub>IN</sub> =12V	30A@25°C, V <sub>IN</sub> =24V	30A@25°C, V <sub>IN</sub> =48V
No-load current	<0.6A	<0.4A	<0.6A	<0.4A	<0.19A
Static Loss	<0.3W@12V	<0.4W@24V	<0.3W@12V	<0.4W@24V	<0.7W@48V
RS485 com. port	5VDC/250mA(Non-isolated)				5VDC/300mA(Isolated)
<b>Mechanical parameters</b>					
Input terminal	M8		M6		M8
Dimension (L×W×H)	428×243×121mm		475×268×139mm		452×268×139
Mounting size	260×220mm		270×245mm		270×245
Mounting hole size	Φ9mm		Φ9mm		Φ9mm
Net Weight	10.4kg	10.1kg	13.3kg	12.7kg	13.9kg

① It means the output efficiency when the load power is 80% of the continuous output power under the rated DC input voltage. (25°C)

② It is measured in the condition of continuous output power and rated input voltage. (25°C)

③ It means the max. efficiency when the inverter is connected with different loads under the rated DC input voltage.



Item	NP1200-12	NP1200-22	NP1500-12	NP1500-22
Continuous output power	1200W@25°C, 1000W@45°C		1500W@25°C, 1300W@45°C	1500W@45°C
Surge power(5S)	2000W		3000W	
Output voltage	220/230VAC (-8%~+3%)	220/230VAC (±3%)	220/230VAC (-5%~+3%)	220/230VAC (±3%)
Output frequency	50/60Hz±0.2%			
Output wave	Pure Sine Wave			
Output distortion THD	THD≤3%(Resistive load)	THD≤3%(Resistive load)	THD≤5%(Resistive load)	THD≤3%(Resistive load)
Load power factor	0.2~1(Load power ≤ Continuous output power)			
Rated input voltage	12VDC	24VDC	12VDC	24VDC
Input voltage range	10.8~16.0VDC	21.6~32.0VDC	10.8~16.0VDC	21.6~32.0VDC
Output efficiency of 80% rated power <sup>①</sup>	81%	85%	84%	88.5%
Max. rated efficiency <sup>②</sup>	78%	84%	82%	87%
Max. output efficiency <sup>③</sup>	92%(200W)	93%(300W)	90%(400W)	92%(500W)
Surge current when power on	30A@25°C, V <sub>IN</sub> =12V	30A@25°C, V <sub>IN</sub> =24V	20A@25°C, V <sub>IN</sub> =12V	20A@25°C, V <sub>IN</sub> =24V
No-load current	<0.6A	<0.4A	<2.0A	<0.5A
Static Loss	<0.3W@12V	<0.4W@24V	<0.6W@12V	<0.6W@24V
RS485 com. port	5VDC/250mA(Non-isolated)		5VDC/300mA(Non-isolated)	
<b>Mechanical parameters</b>				
Input terminal	M6		M10	
Dimension (L×W×H)	511×268×139mm		566×313×145mm	
Mounting size	300×245mm		350×292mm	
Mounting hole size	Φ9mm		Φ9mm	
Net Weight	15.7kg	15.3kg	20.3kg	20.2kg

- ① It means the output efficiency when the load power is 80% of the continuous output power under the rated DC input voltage. (25°C)
- ② It is measured in the condition of continuous output power and rated input voltage. (25°C)
- ③ It means the max. efficiency when the inverter is connected with different loads under the rated DC input voltage.

Item	NP2000-12	NP2000-22	NP2000-42
Continuous output power	2000W@45°C		
Surge power(5S)	4000W		
Output voltage	220/230VAC (-5%~+3%)		
Output frequency	50/60Hz±0.2%		
Output wave	Pure Sine Wave		
Output distortion THD	THD≤5%(Resistive load)	THD≤3%(Resistive load)	THD≤3%(Resistive load)
Load power factor	0.2~1(Load power ≤ Continuous output power)		
Rated input voltage	12VDC	24VDC	48VDC
Input voltage range	10.8~16.0VDC	21.6~32.0VDC	43.2~64.0VDC
Output efficiency of 80% rated power <sup>①</sup>	84.5%	88%	89%
Max. rated efficiency <sup>②</sup>	82%	86%	87%
Max. output efficiency <sup>③</sup>	90%(600W)	93%(500W)	93%(500W)
Surge current when power on	20A@25°C, V <sub>IN</sub> =12V	20A@25°C, V <sub>IN</sub> =24V	20A@25°C, V <sub>IN</sub> =48V
No-load current	<2.5A	<0.6A	<0.3A
Static Loss	<0.6W@12V	<0.6W@24V	<1.8W@48V
RS485 com. port	5VDC/300mA(Non-isolated)	5VDC/300mA(Non-isolated)	5VDC/200mA(Isolated)
<b>Mechanical parameters</b>			
Input terminal	M10		
Dimension (L×W×H)	554×393×175mm		486×313×145mm

Mounting size	350×372mm		350×292mm
Mounting hole size	Φ9mm		
Net Weight	29.8kg	27.6kg	20.7kg

- ① It means the output efficiency when the load power is 80% of the continuous output power under the rated DC input voltage. (25°C)
- ② It is measured in the condition of continuous output power and rated input voltage. (25°C)
- ③ It means the max. efficiency when the inverter is connected with different loads under the rated DC input voltage.

Item	NP2500-12	NP2500-22	NP2500-42
Continuous output power	2500W@45°C		
Surge power(5S)	5000W		
Output voltage	220/230VAC (-8%~+3%)	220/230VAC (-6%~+3%)	220/230VAC (±3%)
Output frequency	50/60Hz±0.2%		
Output wave	Pure Sine Wave		
Output distortion THD	THD≤5%(Resistive load)	THD≤3%(Resistive load)	THD≤3%(Resistive load)
Load power factor	0.2~1(Load power ≤ Continuous output power)		
Rated input voltage	12VDC	24VDC	48VDC
Input voltage range	10.8~16.0VDC	21.6~32.0VDC	43.2~64.0VDC
Output efficiency of 80% rated power <sup>①</sup>	87%	89%	91.5%
Max. rated efficiency <sup>②</sup>	85%	87%	90%
Max. output efficiency <sup>③</sup>	90%(700W)	93%(500W)	94%(800W)
Surge current when power on	20A@25°C, V <sub>IN</sub> =12V	20A@25°C, V <sub>IN</sub> =24V	20A@25°C, V <sub>IN</sub> =48V
No-load current	<3.0A	<0.8A	<0.5A
Static Loss	<0.6W@12V	<0.6W@24V	<1.8W@48V
RS485 com. port	5VDC/300mA(Non-isolated)	5VDC/300mA(Non-isolated)	5VDC/200mA(Isolated)

Mechanical parameters			
Input terminal	M10		
Dimension (L×W×H)	584×393×175mm	604×393×175mm	549×328×175mm
Mounting size	350×372mm	350×372mm	350×307mm
Mounting hole size	Φ9mm		
Net Weight	32.0kg	32.2kg	25.5kg

- ① It means the output efficiency when the load power is 80% of the continuous output power under the rated DC input voltage. (25°C)
- ② It is measured in the condition of continuous output power and rated input voltage. (25°C)
- ③ It means the max. efficiency when the inverter is connected with different loads under the rated DC input voltage.

Item	NP3000-22	NP3000-42	NP3500-42
Continuous output power	3000W@45°C		3500W@45°C
Surge power(5S)	6000W		7000W
Output voltage	220/230VAC (-5%~+3%)	220/230VAC (±3%)	220/230VAC (±3%)
Output frequency	50/60Hz±0.2%		
Output wave	Pure Sine Wave		
Output distortion THD	THD≤3%(Resistive load)		
Load power factor	0.2~1(Load power ≤ Continuous output power)		
Rated input voltage	24VDC	48VDC	48VDC
Input voltage range	21.6~32.0VDC	43.2~64.0VDC	43.2~64.0VDC
Output efficiency of 80% rated power <sup>①</sup>	88%	90%	90%
Max. rated efficiency <sup>②</sup>	86%	89%	89%
Max. output efficiency <sup>③</sup>	94%(500W)	94%(900W)	93%(900W)
Surge current when power on	20A@25°C, V <sub>IN</sub> =24V	20A@25°C, V <sub>IN</sub> =48V	20A@25°C, V <sub>IN</sub> =48V

No-load current	<0.8A	<0.5A	<0.5A
Static Loss	<0.6W@24V	<1.8W@48V	<1.8W@48V
RS485 com. port	5VDC/300mA(Non-isolated)	5VDC/200mA(Isolated)	5VDC/200mA(Isolated)
<b>Mechanical parameters</b>			
Input terminal	M10		
Dimension (L×W×H)	649×393×175mm	599×328×175mm	579×353×175mm
Mounting size	350×372mm	350×307mm	350×332mm
Mounting hole size	Φ9mm		
Net Weight	34.0kg	28.4kg	32.2kg

① It means the output efficiency when the load power is 80% of the continuous output power under the rated DC input voltage. (25°C)

② It is measured in the condition of continuous output power and rated input voltage. (25°C)

③ It means the max. efficiency when the inverter is connected with different loads under the rated DC input voltage.

Item	NP4000-22	NP4000-42	NP5000-42
Continuous output power	4000W@45°C		5000W@45°C
Surge power(5S)	8000W		10000W
Output voltage	220/230VAC (±3%)		
Output frequency	50/60Hz±0.2%		
Output wave	Pure Sine Wave		
Output distortion THD	THD≤3%(Resistive load)		
Load power factor	0.2~1(Load power ≤ Continuous output power)		
Rated input voltage	24VDC	48VDC	48VDC
Input voltage range	21.6~32.0VDC	43.2~64.0VDC	43.2~64.0VDC
Output efficiency of 80% rated power <sup>①</sup>	89%	91.5%	91.5%
Max. rated efficiency <sup>②</sup>	86%	90%	90%

Max. output efficiency <sup>③</sup>	93%(1400W)	94%(1000W)	94%(1400W)
Surge current when power on	20A@25°C, V <sub>IN</sub> =24V	30A@25°C, V <sub>IN</sub> =48V	30A@25°C, V <sub>IN</sub> =48V
No-load current	<2.5A	<0.5A	<0.5A
Static Loss	<0.6W@24V	<1.8W@48V	<1.8W@48V
RS485 com. port	5VDC/300mA(Non-isolated)	5VDC/200mA(Isolated)	5VDC/200mA(Isolated)
<b>Mechanical parameters</b>			
Input terminal	M8(4P)	M10	M8(2P)
Dimension (L×W×H)	660×435×210mm	604×393×175mm	640×435×210mm
Mounting size	625×300mm	350×340mm	605×300mm
Mounting hole size	Φ8.5mm	Φ9mm	Φ8.5mm
Net Weight	43.2kg	37.0kg	50.0kg

- ① It means the output efficiency when the load power is 80% of the continuous output power under the rated DC input voltage. (25°C)
- ② It is measured in the condition of continuous output power and rated input voltage. (25°C)
- ③ It means the max. efficiency when the inverter is connected with different loads under the rated DC input voltage.

#### Environmental parameters

Environment temperature	-20°C~+45°C(All loads can work together at this environment temperature range)
Storage temperature	-35°C~ +70°C
Humidity	< 95%(N.C.)
Enclosure	IP20
Altitude	<5000m (Derating to operate according to IEC62040 at a height exceeding 1000m)

# Annex I Disclaimer

**The warranty does not apply to the following conditions:**

- Damage is caused by improper use or an inappropriate environment (humid, salt spray, corrosion, greasy, flammable, explosive, dust accumulative, or other severe environments).
- The actual current/voltage/power exceeds the limit value of the inverter.
- Damage caused by working temperature exceeds the rated range.
- Arc, fire, explosion, and other accidents are caused by failure to follow the inverter stickers or manual instructions.
- Disassemble and repair the inverter without authorization.
- Damage caused by force majeure.
- Damage occurred during transportation or handling.
- Before using precise instruments, such as a medical instrument, end-users must read the manual carefully and ensure the inverter's output power/output voltage is suitable. We are not responsible for the instrument damage caused by improper use.

**Any changes without prior notice! Version number: V3.3**

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