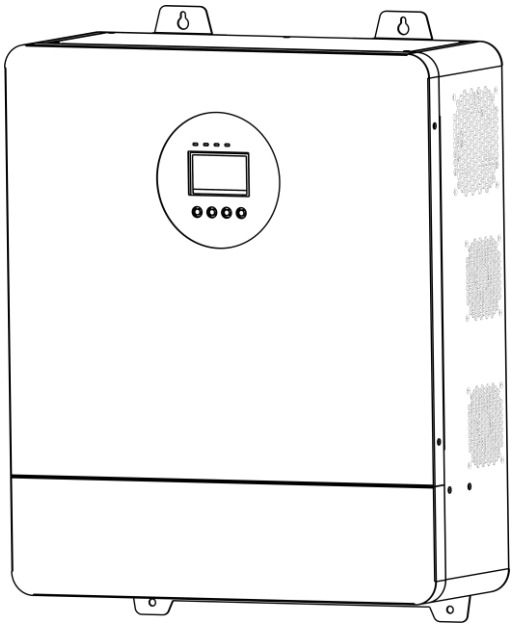
User Manual



NKF series 8KW-10KW

Dear Customers

It’s very grateful to you for trusting our company and selecting our products! Before using this product, please read carefully this user manual, including installation, using, failure investigation and other important information and suggestion, we also suggest you keep this manual well!

Catalogue

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1 Product Features

● Excellent performance because of double MCU intelligent control technology.
● Settable mains supply preferred mode and battery preferred mode for flexible using.
● Settable charge current and multiple threshold voltages for meeting the selection of the different types of batteries.
● Settable output voltage and frequency, making it convenient and practicable.
● Settable unattended function, good for wide range of application scenarios.
● Pure sine wave output, suitable for various types of loads .
● Intelligent cooling device, efficient and energy-saving.
● LCD real-time display of equipment information and operating status.
● Overall protection and alarm functions, safe and reliable.

2 Installation、Storage instruction

（1） Unpacking Inspection

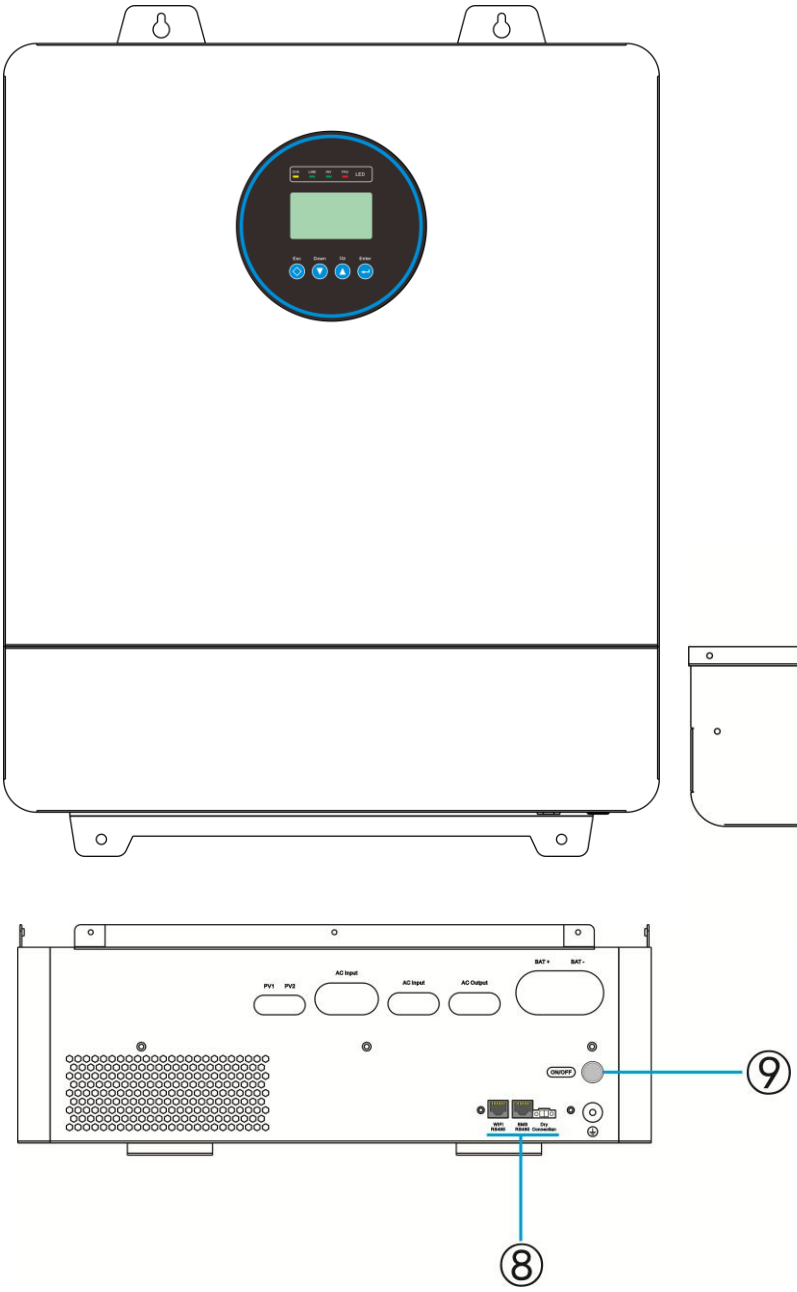
1.1 Open the package, inspect product accessories, including:1 host,1 piece user manual
1.2 Inspect whether the machine have been damaged during the transport or not, If it have some damage, don’t start the machine, contact the logistics company and dealer.

（2） Installation、Storage Notes

2.1 The product installation should be operated by professionals，or assisted by dealer.
2.2 If it needs to transport machine, please take proper protection measures; move the machine from low temperature environment to high temperature environment，may appear droplet, please keep it dry and ensure safety.
2.3 Don’t let the machine exposure in damp, inflammable and explosive or large accumulation of dust environment. Don’t cover and block vents, please preset above 10cm air circulation clearance so that having a good cooling.
2.4 It is battery switch must be shut down when the equipment is not connected with the grid and not being used

3 Equipment appearance graphical representation guide

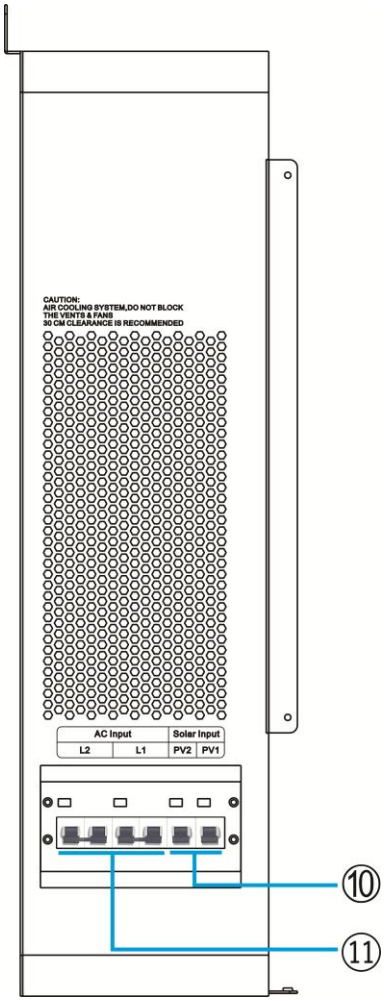
（1）8KW-10KW Front panel diagram introduction



Introduction:

①-- Earth terminal
②-- 110V/220V AC input voltage switch
③-- Solar input port
④-- 110V AC input port(L1-N)
⑤-- 220V AC input port(L1-N-L2)
⑥-- AC output port(L1-N-L2)
⑦-- Battery terminal positive/negative input terminal
⑧-- WIFI port,BMS port,Dry connect port
⑨-- Power ON/OFF

（2） Side panel icon

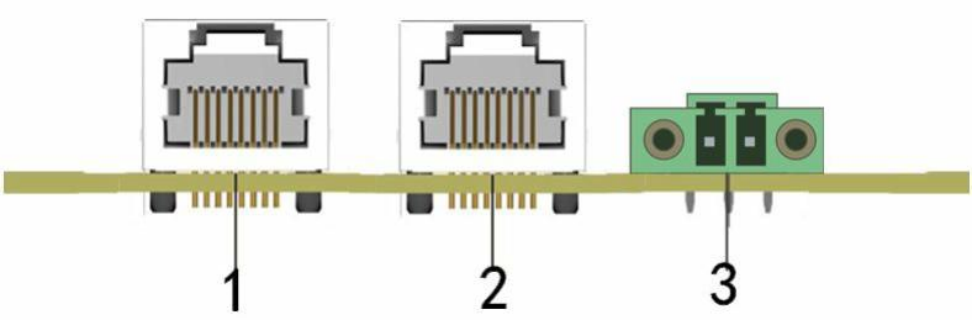


Introduction：

⑩-- Solar input breaker (PV1/PV2)

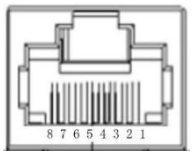
⑪--AC Input breaker(L1/L2)

Description of central control board



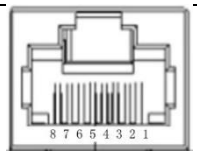
Central control board		
NO	**Description**	**Type**
1	WIFI (RS485 network interface)	RJ45
2	BMS (RS485 network interface)	RJ45
3	Dry connect (Dry junction)	

[1] WIFI (RS485 network interface)



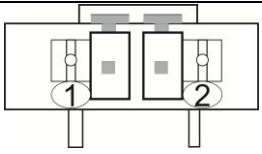
NO	Symbols	Description
1,8	RS485-B	485-B Communication interface
2,7	RS485-A	485-A Communication interface
3,6	GND	Ground
4,5	+5V	+ 5V Power (5V serial power supply)

[2] BMS (RS485 network interface)



NO	Symbols	Description
1,8	RS485-B	485-B Communication interface
2,7	RS485-A	485-A Communication interface
3	GND	Ground
4	NC	NC (Normally Closed Interface)
5	NC	NC (Normally Closed Interface)
6	GND	Ground

[3] Dry connect (Dry junction)



NO	Symbols	Description
①	NC	NC (Normally Closed Interface)
②	NO	NO (normally open interface)

4 Operating instructions

4.1 Panel LCD display graphical representation instruction

The LCD is on the front panel of the inverter and consists of four buttons and an LCD screen, displaying the working status and information of the inverter.



4.1.1 Description of buttons

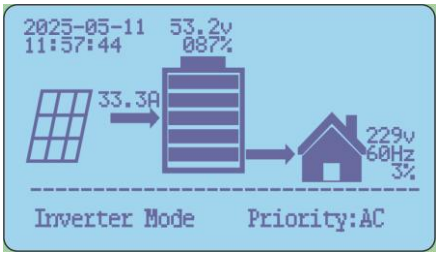
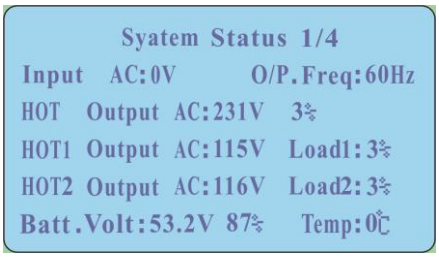
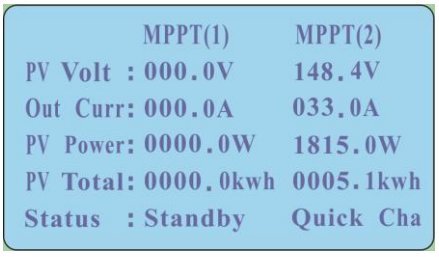
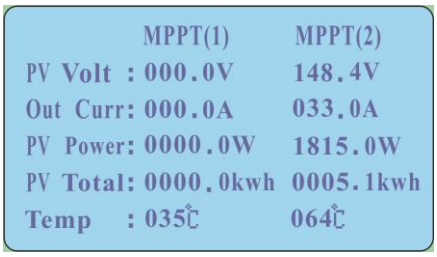
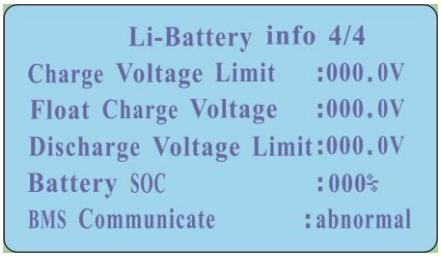
Button Function		Instruction
	Esc	Return to main interface
	UP	Short press to view inverter parameters in the main interface, short press to increment in the setting interface.
	Down	Short press to view the inverter parameters in the main interface, and short press to reduce in the setting interface.
	Enter	Under the main interface, press and hold for less than 3 seconds to enter the setting interface, under the setting interface, press and hold to confirm the parameters.

4.1.2 LED Status Description

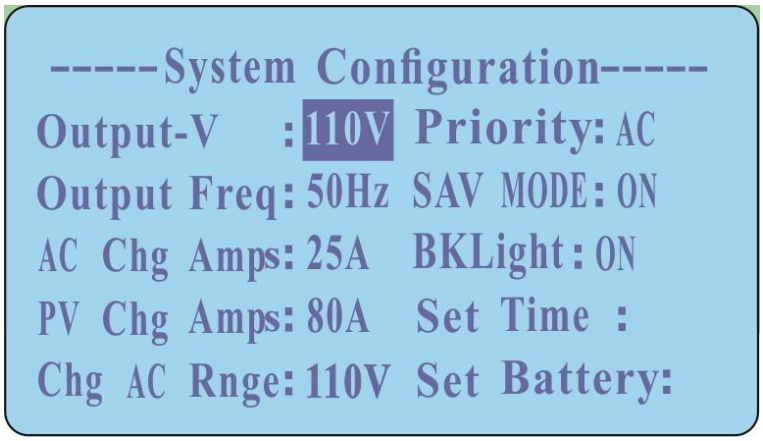
LED display			Description
CHA	Yellow	Light	PV start charging
		OFF	PV stop charging
LINE	Green	Light	The AC is connected and the output is bypassed
		Flash	The AC is connected and in standby mode.
		OFF	Do not connect AC power or it is in inversion state
INV	Green	Light	The device is in inversion state
		OFF	The device is not in inversion state
FAU	Red	Light	AC output overload or Inverter fault
		OFF	The device work normally

4.1.3 LCD display main interface and instructions

View the LCD main interface by pressing the "Up" or "Down" key to switch in turn, the information includes: working mode, AC input/output voltage, battery voltage, output frequency, load Percentage,etc.;

Display information	LCD display
When the inverter is properly connected to the load, battery, and mains power, press the power-on button to enter main interface (Default)	
Input voltage /Battery voltage/Output Frequency/Load Percentage/ Temperature	
PV voltage/Charge current/PV power/Total Power Generation/MPPT module(Status 、 Temperature 、 Output Voltage)	
	
BMS Communicate status/Charge Voltage Limit/Float Charge Voltage/Discharge Voltage Limit/Battery SOC	

4.1.4 LCD parameter setting

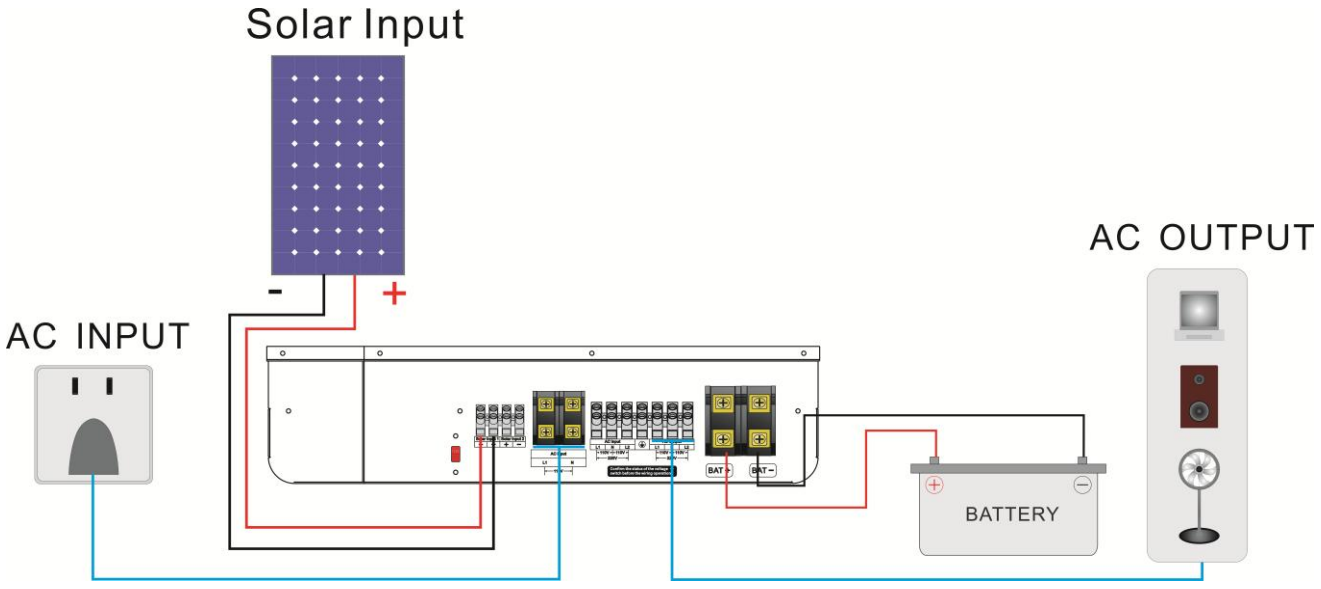


Press and hold the "Enter" button for more than 3 seconds in any main interface to enter the program setting mode, and the program option is flashing. Short press the "Up" or "Down" button to select the program, and then short press the "Enter" button to enter, the corresponding parameters It is flashing. Short press the "Up" or "Down" key to set the parameter value, short press the "Enter" key again to confirm and return to the program setting mode.	
Display option	Options can be set
Output-V	100V/105V/110V/115V/120V
Output Freq	50Hz/60Hz
AC Cha Amps	OFF/15A/25A/35A/50A
PV Chg Amps	OFF/10A/30A/60A/80A/120A/160A/200A/240A
Chg AC Rnge	110V/220V
Priority	Solar/AC
	AC Time Control
SAV MODE	ON/OFF (After setting on, the inverter output will be turned off in the case of empty load, and the empty load power consumption will be reduced to 10W.)
BKLight	Normal(1 Min)
	ON

Set Time	Date
	Time
	OK
Set Battery	CC-V: The setting range is from 48V to 64V, Increment of each click is 0.4V
	FLA-V: The setting range is from 48V to 64V, Increment of each click is 0.4V
	DC-RECR:The setting range is from 40V to 58V, Increment of each click is 0.4V
	LV-OFF:The setting range is from 30V to 48V, Increment of each click is 0.4V
	LV-ALM: The setting range is from 32V to 50V, Increment of each click is 0.4V
	AC-KCIN: The setting range is from 36V to 52V, Increment of each click is 0.4V
	Reset Fectory Settings:ON/OFF

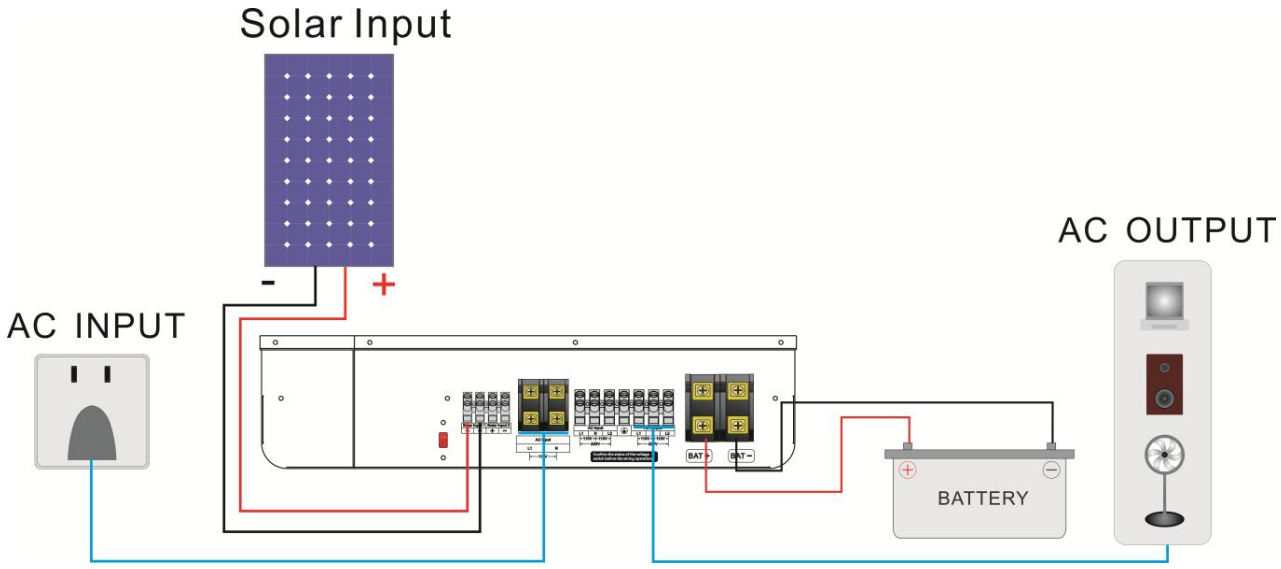
5 Equipment wiring diagram guide

5.1 Battery wiring graphical representation

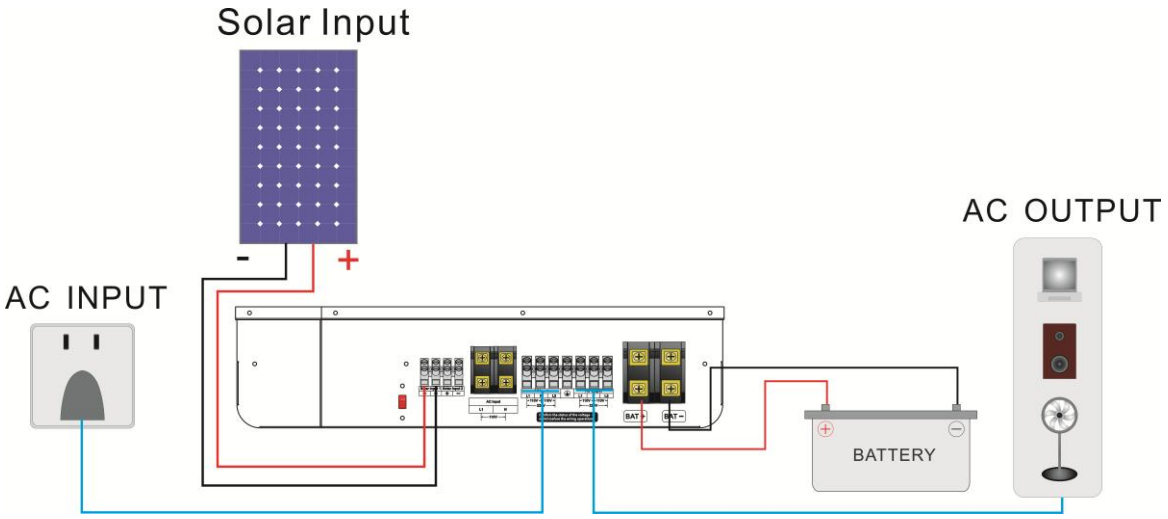


***It can be adapted to lead-acid batteries or lithium batteries,make sure polarity at both the battery and the inverter is correctly connected and conductors are tightly screwed into the battery terminals.**

5.2 Input/Output wiring diagram



110V AC input(L1-N)



220V AC input(L1-N-L2)

*** Important Notice:**

1. Confirm the status of the "②-- 110V/220V AC input voltage switch " before the wiring operation

2. When inputting 110V (L1-N), switch to the 110V setting; When inputting 220V (L1-N- L2), switch to the 220V setting;

3.110V (L1-N) and 220V (L1–N–L2) cannot be input simultaneously;

***Warning:**

Abnormal operation that does not comply with the requirements may damage the equipment and is not covered under the warranty.

5.3 Direction for using of wire diameter

5.3.1 Battery Connection wire diameter

Rate Power	12V	24V	48V
1000W	16mm²	10mm²	6mm²
2000W	32mm²	16mm²	10mm²
3000W	50mm²	25mm²	16mm²
4000W	70mm²	35mm²	20mm²
5000W		50mm²	25mm²
6000W		50mm²	25mm²
8000W			35mm²
10kW			35mm²

5.3.2 AC Input / Output Connection wire diameter

Rate Power	AC 220V/240V	AC 110V/120V
1000W	2.5mm²	2.5mm²
2000W	2.5mm²	2.5mm²
3000W	4mm²	6mm²
4000W	4mm²	8mm²
5000W	4.5mm²	10mm²
6000W	6mm²	12mm²
8000W	10mm²	16mm²
10kW	10mm²	16mm²

5.4 Photovoltaic module access instructions

After connecting the photovoltaic module with a suitable wire diameter, make sure that the voltage and power are within the rated range, and connect it to the "③--Solar input port " on the side panel of the equipment. Pay attention to the polarity error in the connection process of the photovoltaic module, so as not to damage the equipment.

5.5 Mains access instructions

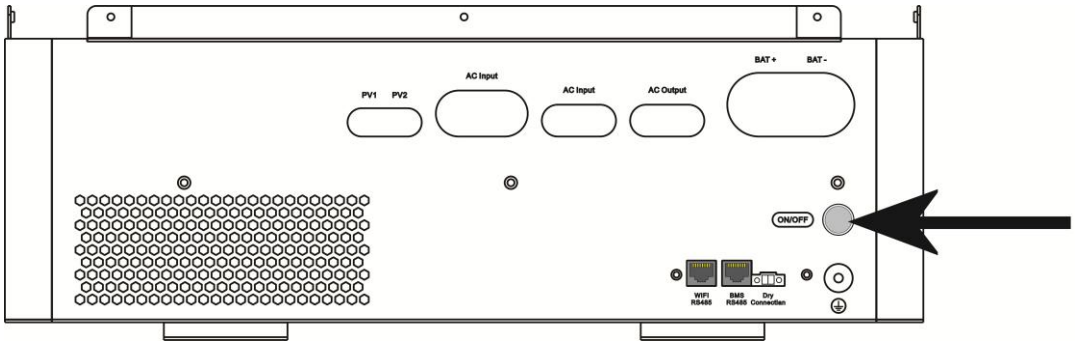
Select the right diameter of the wire to connect the power supply to the side board of the equipment on the "④--110V AC Input port(L1-N)"or"⑤--220V AC Input port(L1-N-L2)"

5.5.1 Note that the input AC voltage should be within the input range of the equipment to avoid damage the equipment .

5.5.2 To operate the "②--110V / 220V AC Input voltage switch" it is essential to ensure that the inverter is in power-off state. When using 110V input, switch to the 110V setting.When inputting 220V, switch to the 220V setting.

6 Power ON/RUN

6.1 Inverter Power ON/RUN



Once the unit has been properly installed and the batteries are connected well ,simply press On/Off switch (located on the button of the case) to turn on the equipment.

6.2 Equipment shutdown

Shutdown: Turn off the loads, disconnect AC input, and then press the " on / off " button, release after the internal relay action, the device off the AC output and LCD screen is turned off. Switch off all the circuit breakers.

7 Care and Maintenance

（1）This series products only need rarely care, battery only need keeping charging so that can get expected lifetime.

（2）If the equipment will not be used for long-term, we suggest it should be charged 1 time every 4~6 month. Usually, the battery can be used for 3~5 years, if it has some problem, then the battery should be changed as soon as possible. When changing battery, it must be operated by professional and obey battery supplier indicate.

（3）Before changing the battery, it must be closed equipment and break away from the grid, close the battery switch. Take off the metal objects such as rings.

（4）Connect the battery line, tiny spark in joint belongs to the normal phenomenon, and will not cause harm to the personal safety and equipment. Never connect the battery positive and negative into short or the reverse.

8 Technology Parameter sheet

Inverter	TypeNKF-	8KW	10KW
	Rated power	8000W	10000W
	Peak power	24kw	30kw
	Battery voltage	48V	
Solar Controller	Charge current	120A	
	PV input way	2 ways（120A）	
	PV Array MPPT Voltage Range	60V-180V	
	Max PV Array Power	2880W*2	
	Controller transfer efficiency	≈99%	
	Unattended mode	Power off: MPPT can charge when there is sunshine, realizing unattended photovoltaic power generation.	
AC input	AC input Voltage Range	(L1-N)110VAC:80-130VAC	
		(L1-N-L2)220VAC:160-260VAC/130-280VAC	
	AC input Voltage Range	45Hz-65Hz(Intelligent automatic detection)	
	AC input current (can be set)	close(Turn off the mains power charging function)	
AC output	AC Output wave	Pure sine wave	
	AC Output Efficiency	≈90%	
	AC Output voltage	(L1-N,L2-N):110VAC (L1-L2):220VAC	
	AC Output Frequency	50Hz/60Hz(can be set)	
	Energy-saving mode loss	5W	
Work mode	INV mode	Utility priority mode、Battery priority mode、Energy-saving mode、Unattended mode、Generator mode	
Battery	Support battery type	Lead-acid battery/ Gel battery /Lithium battery/ Ternary lithium battery /User-Defined battery	

	Battery custom parameters	Balanced Charging, Floating charging、Battery recovery、Utility recovery、Low voltage alarm、low voltage protect
	Battery charging way	Lead-acid:3-Step, Constant Current,Balanced Charging, Floating charging
		Lithium: Constant Current,Balanced Charging
	Number of lithium battery strings	Lithium battery:3.2V Ternary lithium battery:3.7V
Protect	Battery under-voltage	Battery under-voltage / Battery over-voltage / Overload protection / High temperature protection / charging way etc.
Display	LED Display	Utility status、Inverter status、charging status、alarm
	Screen Display	Work status、AC input/output voltage、PV information display、inverter setting parameters etc.
	Language	Chinese/English
Transfer Time		<5ms
Heat loss		Smart Temperature Control
Communication		WIFI /RS485/Dry connect
Operating ambient temperature		(-10C~40C)
Altitude		≤3000m
Machine Size		675*520*195
Package Size		710*620*271

Note: Our company has the right of changing this user manual without any information