# User Manual

## YouthPOWER 8KW all-in-one user manual

**Please comply with all warnings and operating instructions in this manual strictly. Save this manual properly and read carefully the following instructions before installing the unit. Do not operate this unit before reading through all safety information and operating instructions carefully.**

# 1. System diagram

- System diagram structure
- Battery system design

This system consists of one 8KW inverter and two 51.2V200Ah modules in parallel.

| Serial | Description | Details | Rated Voltage (V) | Rated Capacity (Ah) | Power | Structure | Remarks |
|---|---|---|---|---|---|---|---|
| 1 | Cell |  | 3.2 | 100 | 320 | 2P1S | |
| 2 | Battery Pack |  | 51.2 | 200 | 9600 | 2P16S | 2PCS |
| 4 | **Inverter 8kw** |  | / | / | / | / | 1PCS |
| 5 | The cabinet |  | / | / | / | / | 1PCS |

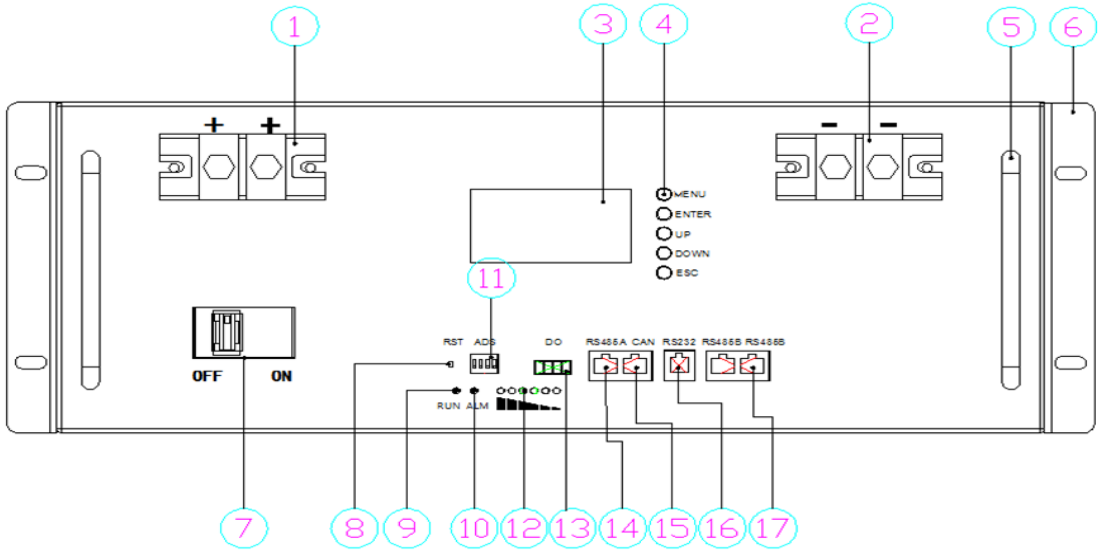
## 1.3.Safety Gear

| | | | |
|---|---|---|---|
|  |  |  |  |
| Insulated gloves | Safety goggles | Safety shoes | Helmet |

**WARNING**

**Insulating gloves should be worn during the wiring process to avoid accidental contact with hardware contacts and prevent safety risks.**

## 2.Battery module introduction 电池模组介绍




| No. | **Item** | **Functional Description** | Remark |
|---|---|---|---|
| 1 | Battery + | Positive terminal | |
| 2 | Battery - | Negative terminal | |
| 3 | LCD | | |
| 4 | KEY | | |
| 5 | Handle | | |
| 6 | Hanger | | For mounting the battery pack |
| 7 | Switch | ON/OFF | |
| 8 | RST | On/OFF /Reset button | |
| 9 | RUN | Working indicator light | Display state information |
| 10 | ALM | ALM alarm indicator light | Red-trouble-light on |
| 11 | ADS | Battery address dialer | Display connection address |
| 12 | CAPACITY | Capacity volume indicator | Display the battery's capacity |
| 13 | Dry contact | DO | Normal close |
| 14 | RS485 | RS485 communication interface | RS485connection port-A |
| 15 | CAN port | CAN | CAN communication port |
| 16 | RS232 port | RS232 | RS232 communication port |
| 17 | RS485 port | RS485B | |

## 3.SOC Indicator & Status Indicator Guides

●Chart 1: Battery Status

| Status | Normal/ Warning/ Protection | RUN | ALM | | Capacity LED | | | | | Description |
|---|---|---|---|---|---|---|---|---|---|---|
| | | ● | ● | ● | ● | ● | ● | ● | ● | |
| Shut Down | Shut down | OFF | OFF | OFF | OFF | OFF | OFF | OFF | OFF | All OFF |
| Standby | Normal | Flash | OFF | OFF | OFF | OFF | OFF | OFF | OFF | Standby |
| Charge | Normal | ON | OFF | Based on capacity | | | | | | |
| | Warning | ON | Flash | | | | | | | |
| | Protection | ON | ON | | | | | | | |
| Discharge | Normal | ON | OFF | Based on capacity | | | | | | |
| | Warning | ON | Flash | | | | | | | |
| | Protection | OFF | ON | OFF | OFF | OFF | OFF | OFF | OFF | UVP,OCP… |
| Fault | Protection | OFF | ON | OFF | OFF | OFF | OFF | OFF | OFF | Stop charging or discharging |

●Chart 2: Battery Capacity

| Status | | Charging | | | | | | Discharging | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Capacity LED Indicator | | L6 ● | L5 ● | L4 ● | L3 ● | L2 ● | L1 ● | L6 ● | L5 ● | L4 ● | L3 ● | L2 ● | L1 ● |
| Capacity | 0～16.6% | OFF | OFF | OFF | OFF | OFF | Flash | OFF | OFF | OFF | OFF | OFF | NO |
| | 16.6～32.2% | OFF | OFF | OFF | OFF | Flash | ON | OFF | OFF | OFF | OFF | NO | NO |
| | 32.2～49.8% | OFF | OFF | OFF | Flash | ON | ON | OFF | OFF | OFF | NO | NO | NO |
| | 49.8 ～66.4% | OFF | OFF | Flash | ON | ON | ON | OFF | OFF | NO | NO | NO | NO |
| | 66.4%～83% | OFF | Flash | ON | ON | ON | ON | OFF | NO | NO | NO | NO | NO |
| | 83%～100% | Flash | ON | ON | ON | ON | ON | NO | NO | NO | NO | NO | NO |
| RUN Status ● | | ON | | | | | | Flash | | | | | |

## 4 Connectors

Charge / Discharge connectors: to connect the positive pole (+) and negative pole (-) from the battery to the inverter via DC isolator.

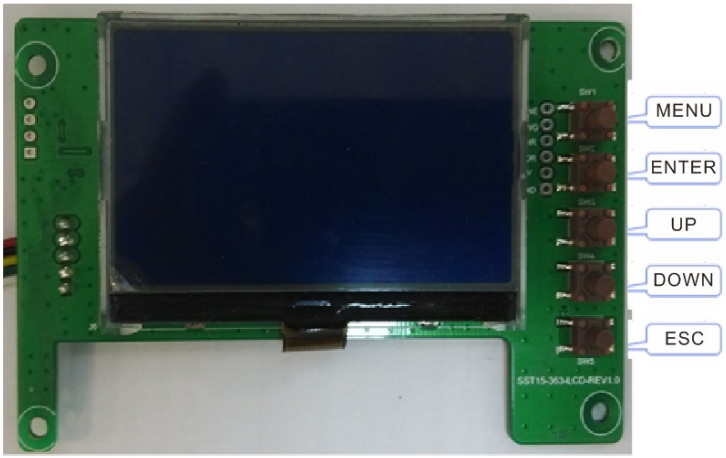
RS485: Active communication portal between battery and inverter.

USB To RS232: to get dynamic monitoring data of the battery from upper computer.

Address: Reserved Address portal for multiple parallel connections.

# 5.Display function instruction

## 5.1 **Reference of real figure**




## 5.2Display rendering

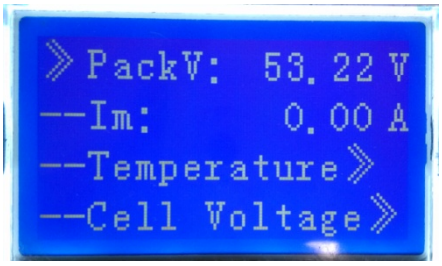

## 5.3 Functional Specifications

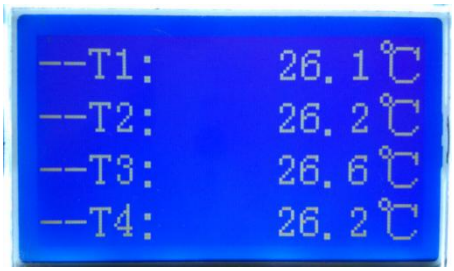
- Interface introduction
- Main menu page
- Electricity/dormancy activated, will show the welcome screen, press the MENU button to enter the main menu page. As shown in the figure below：


- Battery parameters collection page

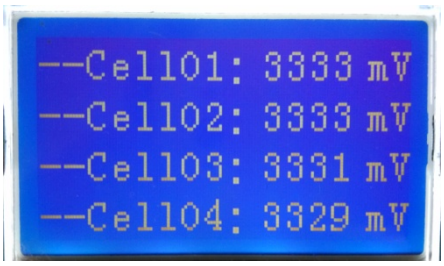
When the cursor“》”is point to “Battery Parameters Acquisition”，press ENTER key will enter into the page of“ Battery Parameters Acquisition”，As shown in the

figure below：





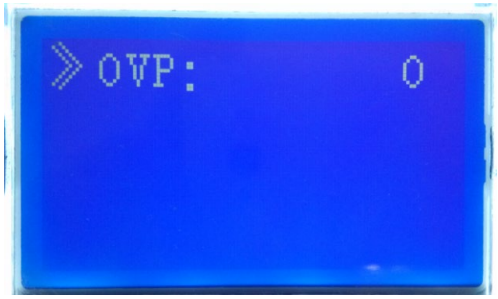


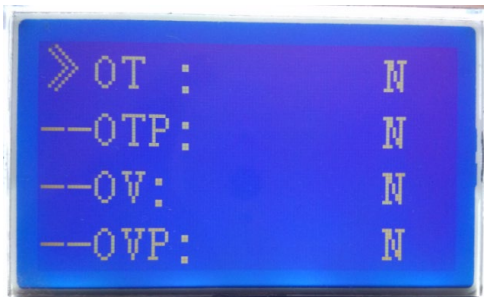



●Battery status page

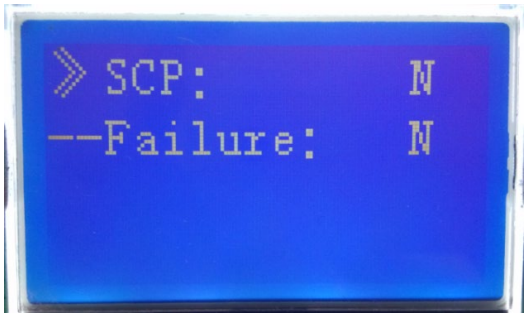
When the cursor "》"is point to" Battery Status"，press ENTER key will enter into the page of "Battery Status"，As shown in the figure below：





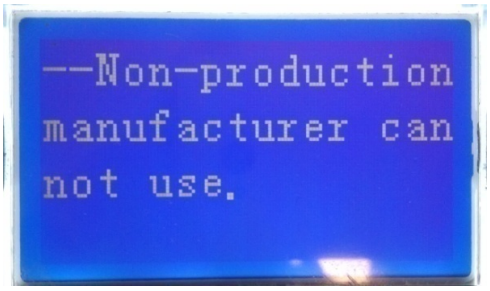







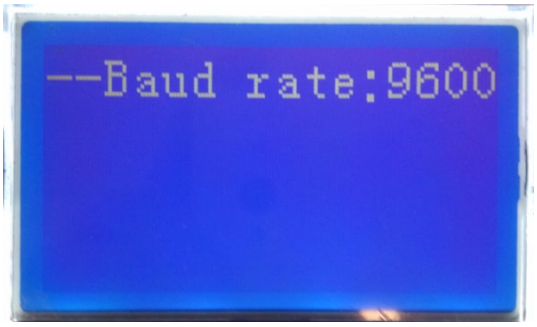
●Parameter Settings

Screen can not set parameters




●System Settings Page

Baud Rate：9600 do not set




●Key description

1) SW1----NEMU，SW2----ENTER，SW3----UP，SW4----DOWN， SW5----ESC.

2) Each item is “》”or“--”as a beginning，among them“》”shows the current cursor position，press UP or DOWN key can move the cursor position；with“》”end of the project，the content of the said project has not shown, press ENTER key can enter the corresponding page.

3) Press ESC key can be returned at the next higher level directory；In any position， press NEMU key can return to the main menu page.

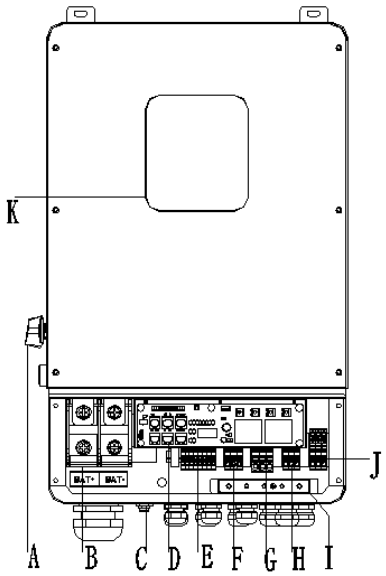
4) In a dormant state, press any key, can activate the screen.

● Dormancy/shutdown

Under normal operation condition, with no keystrokes 1 minutes later, system will enter a state of dormancy/shutdown.

Shutdown/dormancy state，press any key，screen can be activated.

## 5.4 Terminals of PV inverter




| Object | Description |
|---|---|
| A | DC switch |
| B | BAT input |
| C | Wi-Fi |
| D | DRM/BMS/CT/DRY IO/CAN/USB upgrading |
| E | PV1~PV4 input |
| F | Generator |
| G | Grid |
| H | BACK-UP1 output |
| I | PE |
| J | BACK-UP2 output |
| K | LCD |

# 6. Product Parameters：

| 8000VA 51.2V200AH Solar energy storage system | |
|---|---|
| **Battery Pack** | |
| Nominal voltage | 51.2V |
| Rated capacity | 400Ah |
| Rated reserved energy | 20480Wh |
| Standard charging current | 0.2C |
| Total charging cut-off voltage | 57.6V |
| Cut-off voltage of charging monomer | 3.65V |

| | |
|---|---|
| Standard discharging current | 0.2C |
| Maximum continuous discharging current | 200A |
| Cut-off voltage of discharging monomer | 2.7V |
| Charging temperature range | 0℃～55℃ |
| Discharging temperature range | -20℃～65℃ |

## Inverter

| Technical Data | R8KLNA |
|---|---|
| **PV Input Data** | |
| MAX.DC Input Power | 12KW |
| NO.MPPT Tracker | 4 |
| MPPT Range | 120 - 500V |
| MAX.DC Input Voltage | 500V |
| MAX. Input Current | 12A |
| **Battery Input Data** | |
| Nominal voltage (Vdc) | 48V |
| MAX. Charging/Discharging Current | 190A/190A |
| Battery Voltage Range | 40-60V |
| Battery Type | Lithium and Lead Acid Battery |
| Charging Strategy for Li-Ion Battery | Self-adaption to BMS |
| **AC Output Data(On-Grid)** | |
| Nominal output power Output to Grid | 8KVA |
| MAX. Apparent Power Output to Grid | 8.8KVA |
| Output Voltage Range | 110-120/220-240V split phase, 1Ø, 230 1 phase |
| Output Frequency | 50/60Hz（45 to 54.9Hz / 55 to 65Hz） |
| Nominal AC Current Output to Grid | 34.8A |
| Max.AC Current Output to Grid | 38.3A |
| Max.AC Current From Grid | 50A |
| Output Power Factor | 0.8leading…0.8lagging |
| Out Put THDI | < 2% |
| **AC Output Data(Back-Up)** | |
| Nominal. Apparent Power Output | 8KVA |
| MAX. Apparent Power Output | 8.8KVA |
| Nominal Output Voltage L-N/L1-L2 | 120/240V |
| Nominal Output Frequency | 60Hz |
| Output THDU | < 2% |
| **Efficiency** | |
| Europe Efficiency | >=97.8% |
| MAX. Battery to Load Efficiency | >=97.2% |

# 7 .Installing the Battery Pack

## 7.1.Inventory of items

When you receive the goods, please check the packaging carefully. If any item is missing or the outer packaging is opened or the device itself is damaged, please contact the dealer immediately.

## 7.2. Installation Location

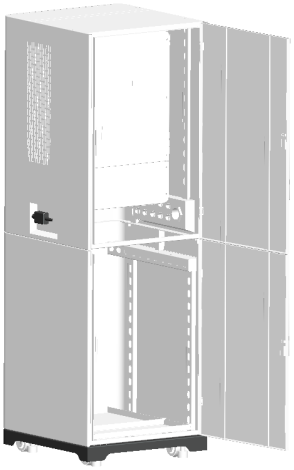
Make sure that the installation location meets the following conditions:

- The installation site must be suitable for the size and weight of the battery.
- There are no flammable or explosive materials in proximity
- The ambient temperature is within the range from 0°C to 45°C.

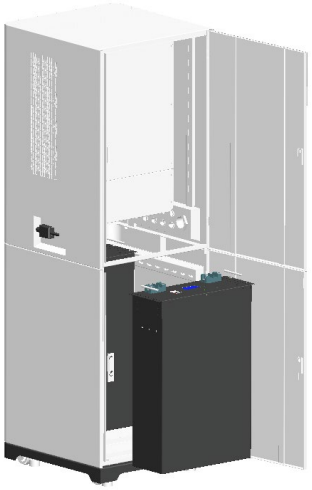
  There is minimal dust and dirt in the area.

## 8 Assembly

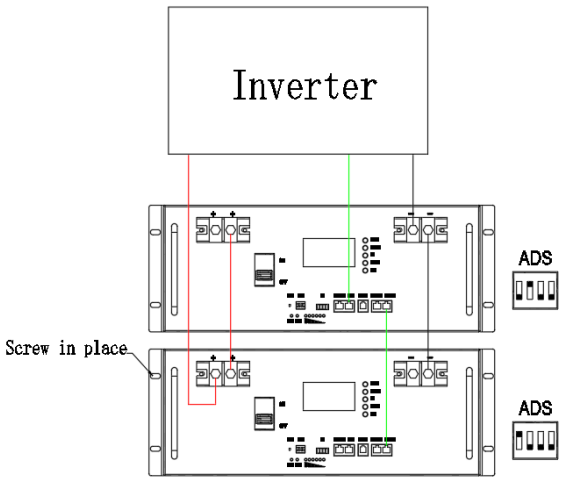
8.1. Place the cabinet on a level concrete floor and open the 2 cabinet doors at the back of the cabinet.



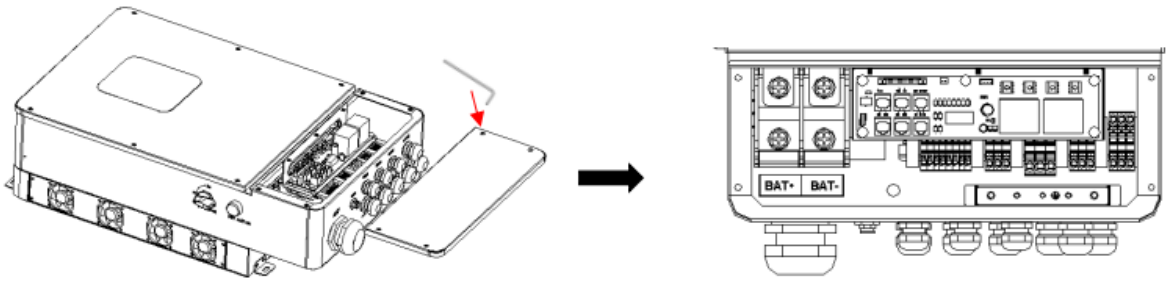
8.2. At least 2 operators are required to install the battery pack into the cabinet.



8.3. Fix the battery pack and wire, dial the dial switch to the location shown.



8.4. Remove the cover screws by Allen Wrench and remove the cover. Remove the waterproof cover by a flat blade screwdriver. Wiring box conduit plugs, Conduit plugs are provided for 1 inch conduit fittings. If used conduit fitting is not 1 inch, an appropriate conduit adaptor should be used.




Grid Connection (GEN connection)

**Step1**. Check the grid voltage.

1.1 Check the grid voltage and compare with the permissive voltage range (Please refer to technical data).

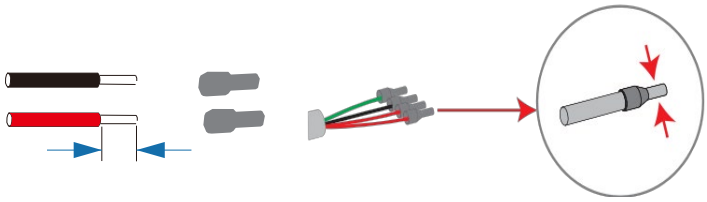
1.2 Disconnect the circuit board from all the phases and secure against re-connection.

**Step2**. Grid cables choose

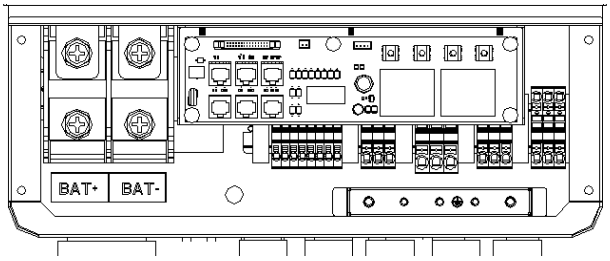
Use the right pin terminal from the accessory box. Press the connectors on cable conductor core tightly.

| Model | R5KLNA | R5KLNA | R7K6LNA | R8KLNA |
|---|---|---|---|---|
| Cable | 12AWG | | 10AWG | |

**Step3.** Choose the wire to connect with the cold-pressed terminal. (Remove 18mm of insulation from the end of wire.)



**Step4**. Cross the Grid cables although the grid port, Connect Grid cables to Grid terminals.




## 8.5 Back-up:Load1 and Load2 Connection

Inverter has On and Off grid function, the inverter will deliver output power through AC port when the grid is on, and it will deliver output power through back-up port when the the grid is off.

- Auto & Manual

  BACK-UP function can be achieved automatically or manually according to user's wishes. BACK-UP function can only be triggered automatically.

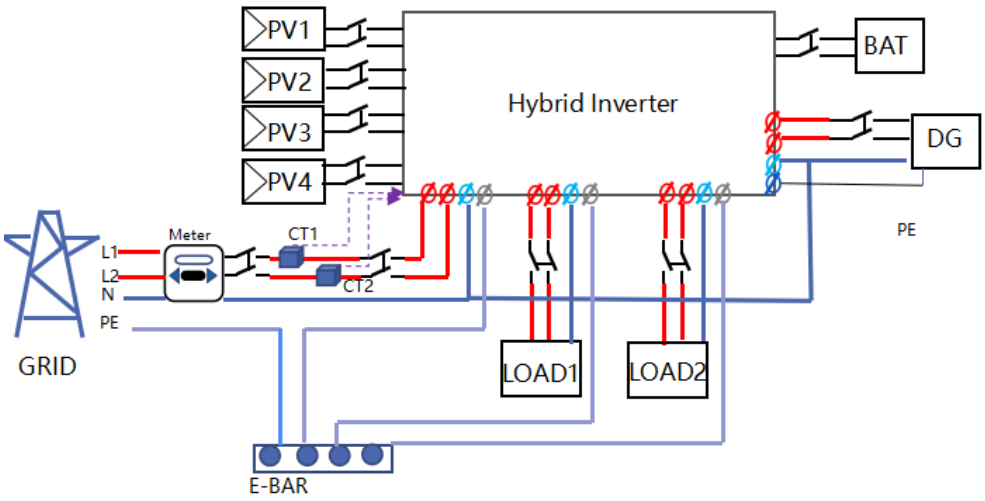
- Load1 port: important load.

  Load2 port: When the battery is not sufficient, the load on this interface will power down

1).For inverter, the standard PV installation typically consists of the connection of the inverter with both panels and batteries. In case of systems not connected to the batteries, the Back-Up function is strongly not advised to use. It shall not cover the standard warranty and be liable for any consequences arising from users not following this instruction.

2) Hybrid inverters are able to supply over load output at its "Back-Up". For details please refer to the technical parameters of inverter. And the inverter has self-protection dreading at high ambient temperature.

3) For complicated application, or Special load， please contact after-sales.




**Note!**

In case of discrepancies between wiring mode of local policy and the operation guide above, especially for the wiring of neutral line, grounding and RCD, please contact us before any operation!

## ➢ Back-Up:Load1 and Load2 Connection:

When using the off grid function, please add off grid AC breaker in off grid output cable to ensure safety.

| Model | R5KLNA | R6KLNA | R7K6LNA | R8KLNA |
|---|---|---|---|---|

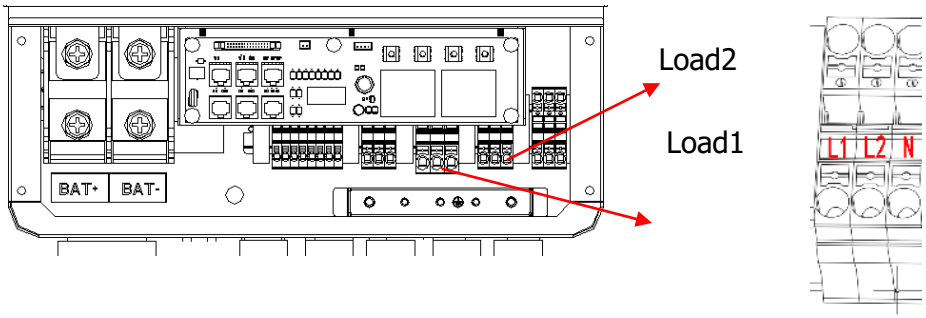
| | | |
|---|---|---|
| Micro-breaker | 32A | 40A |

**Note:** The absence of AC breaker on back-up side will lead to inverter damage if an electrical short circuit happens on back-up side.

**Step1**.Make BACK-UP wires.

| Model | R5KLNA | R6KLNA | R7K6LNA | R8KLNA |
|---|---|---|---|---|
| Cable | 12AWG | | 10AWG | |

**Step2**. Connect the cables to the BACK-UP:Load1 and Load2 port of the inverter.

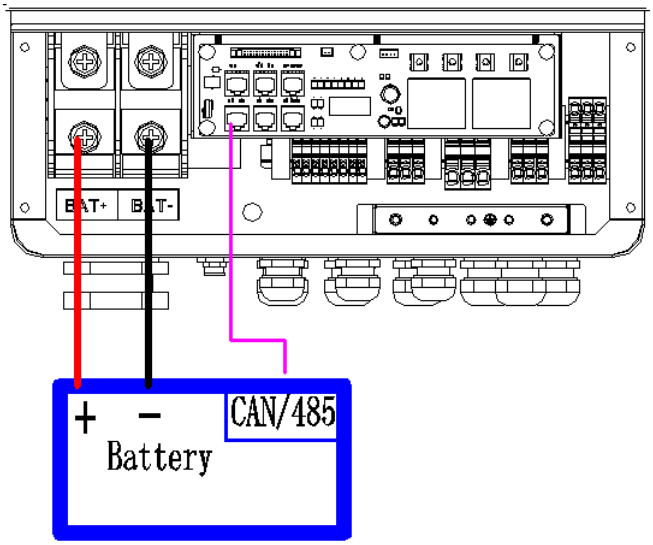



## ➢ Requirements for BACK-UP load

**Waring!**

Make sure the BACK-UP load power rating is within BACK-UP output rating, otherwise the inverter will shut down with an “over load” warning.
When an “over load” is appeared, adjust the load power to make sure it is within the BACK-UP output power range, then turn the inverter back on.
For the nonlinear load, please make sure the inrush power should be within the BACK- UP output power range.

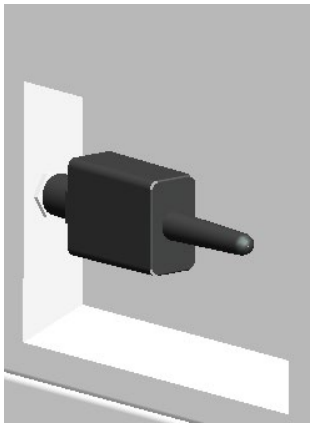
**Battery connection diagram：**

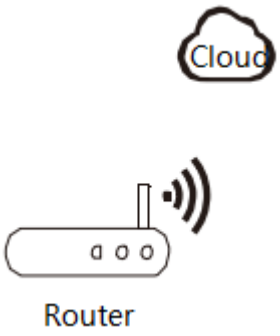


Wi-Fi Connection (optional)

Inverter provides a Wi-Fi port which can collect data from inverter and transmit it to monitoring-website by Wi-Fi.

**1) Diagram**

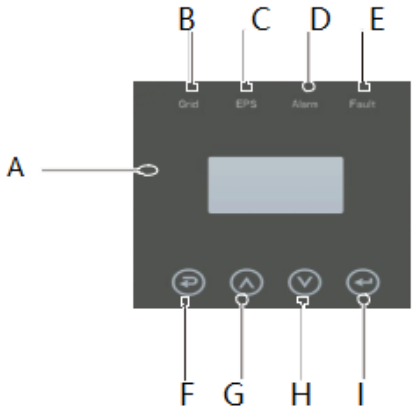





**2)Wi-Fi Connection :**
**Step1**. Plug Wi-Fi into “Wi-Fi” port at the bottom of the inverter.
**Step2.** Build the connection between the inverter and router.
**Step3.** Create a user account online.( Please check the Wi-Fi user manual for more details).

## 9. LCD Operation

9.1 Control Panel




| Object | Name | Description |
|---|---|---|
| A | LCD Screen | Display the information of the inverter. |
| B | Indicator LED | lit in green: The inverter is in grid mode.<br>Off: The inverter is in not in grid mode. |
| C | | lit in green: The inverter is in off-grid mode.<br>Off: The inverter is in not in off-grid mode. |

| | | |
|---|---|---|
| D | | lit in Yellow: The inverter is in Warning .<br>Off: The inverter has no Inverter Warning |
| E | | lit in red: The inverter is in fault status.<br>Off: The inverter has no errors. |
| F | Function Button | Esc: Return from current interface or function. |
| G | | Up: Move cursor to upside or increase value. |
| H | | Down: Move cursor to downside or decrease value. |
| I | | Enter: Confirm the selection. |

9.2 Instructions for LED Indicator

| | Grid ( Green ) | EPS ( Green ) | Alarm (Yellow) | Fault (Red) |
|---|---|---|---|---|
| Initialization | off | off | off | off |
| Stand-by | off | off | off | off |
| Grid mode | on | off | off | off |
| Off-Grid | off | on | off | off |
| Bypass of mains | off | on | on | off |
| Fault | off | off | off | on |

## 10.System use

10.1. Battery system boot

1. Reconfirm that the wiring is correct.
2. Press the RST key for 3 seconds, and the battery starts when the LED flashes from the RUN light to the minimum capacity indicator. Turn on battery pack output DC switch. Start the inverter.

## 11.Appendix: Tools

The following tools are required to install the battery pack.