User Manual

Lithium-ion Battery

JNB048100-H-V2

JNB048100-H-V2-EN-V1.0

Preface

Manual Instruction

This manual describes the transportation, installation, operation, maintenance and troubleshooting of the following Lithium ion battery:

- JNB048100-H-V2

In order to describe conveniently later, Lithium ion battery will be short for battery.

Target Reader

This manual applies to the professional engineering and technical person who is responsible for installing and operating of battery.

Use the Manual

Please read this manual carefully before installing and operating battery. Please keep this manual well for operation and maintenance in future. The manual content would be constantly updated and revised, but it unavoidably has slightly discrepancies or errors with real battery, please kind prevail if user purchases our battery.

Symbol Used

The following safety symbols may be used in this manual, and the meanings are shown in below.

Safety Symbol	Meaning
 **Danger!**	Means that it may lead to serious accident of injuries, if safety warning is ignored.
 **Warning!**	Means that it may lead to serious accident of injuries, equipment serious damage or main business interruption, if safety warning is ignored.
 **Notice!**	Means that it may lead to moderate accident of injuries, equipment moderate damage or part of the business interruption, if safety warning is ignored.
 **Note!**	Means that the content is additional information.

Battery related symbols:

Symbol	Meaning
	Refer to relevant instructions.
	Can not discard Battery together with domestic garbage .
	Beware of dangerous high-voltage.
	CE certification marks. It means that battery complies with the requirement of CE certification.
	Fire signs should be kept away from fire sources

Content

1 Safety Instructions

For the electrical and electronics equipment, safety relates to the whole process of installation, commissioning, operation and maintenance. Therefore, incorrect use or operation would damage the life and personal security of operating person or the third party, and batterys.
In order to reduce casualties, damage of battery and other equipments, user or operating person should strictly abide by all the safety information tips of danger, warning and notice which are in the process of operating and maintaining.

Warning!
All the installation and operation of battery must be completed by professional and technical person. Professional and technical person need:

- Receive special training
- Read this manual completely and master the operation related to safety matters. Any damage caused by improper installation or operation which do not according to the introduction in this manual will be beyond the warranty scope of Our company.

Before installation

Notice!
Please inspect the battery whether there is any damage or not, which may caused during transportation. Please contact our company or transportation company immediately if some problems of battery are found.

Installing

When the battery is installed, the battery switch must be disconnected to ensure that there is no voltage between the total positive and negative.

Danger!

- Do not connect the total positive and negative of the battery directly with wires.

Danger!

- Do not heat the battery.

Danger!

- When hanging up, solid concrete wall should be selected, otherwise, due to insufficient bearing capacity, the battery will fall down, hurt feet and damage the battery.

Warning!

- The battery should be used in the environment of 0 ℃ - 60 ℃, otherwise the service life of the battery will be affected.
- Do not install the battery in inflammable and explosive places or storage places of inflammable and explosive materials.
- Do not install the battery in the place with more salt mist.
- Do not install batteries in strong EMI equipment.

During electrical connection

Danger!

- Do not turn on the battery switch until the positive and negative connection of the battery is completed.

Notice!

- The connecting cable must be of proper specification, firmly connected and well insulated.

In operation

Danger!

- Do not touch the positive and negative terminals of the battery when it is charged.

Repair

Danger!

The maintenance work shall be carried out by professional maintenance technicians. Before inspection or maintenance, please disconnect the battery switch. After waiting for at least 5 minutes, measure the positive and negative terminal voltage of the battery with a voltage meter to ensure that the operation is conducted without voltage.

2 Products Introduction

2.1 Introduction of battery application

JNB048100-H-V2 lithium-ion batteries have high energy density, ultra long cycle life, temperature characteristics, excellent safety performance, high reliability, flexible expansion, up to 8 parallel machines.
This product is a new type of battery with LiFePO4 battery cell, BMS and temperature detection.
It can perfectly replace the traditional lead-acid battery, and can exchange information with various photovoltaic energy storage PCs. it is widely used in off grid and grid connected photovoltaic energy storage systems; it can meet the requirements of outdoor lighting, emergency or temporary power consumption, field work and other places, and can also be used as home standby power supply.

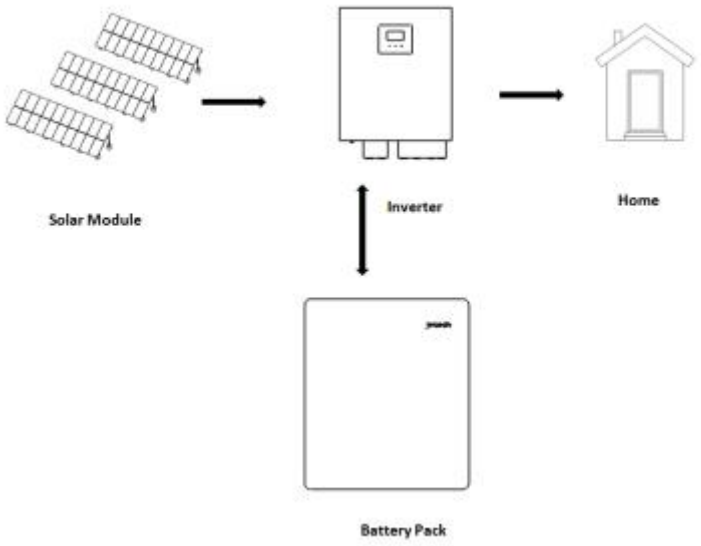


Figure 2-1 application system of lithium ion battery

2.2 Product Introduction

2.2.1 Appearance Introduction

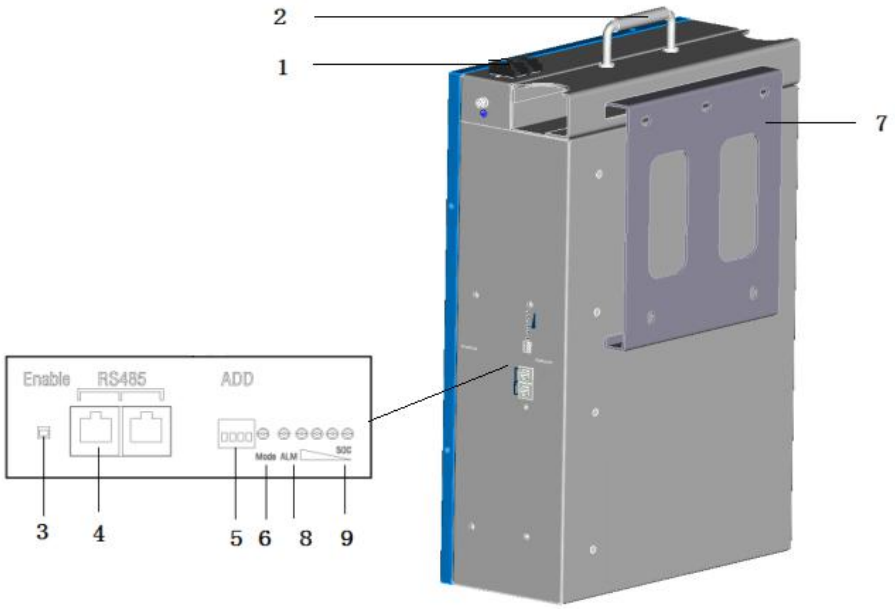
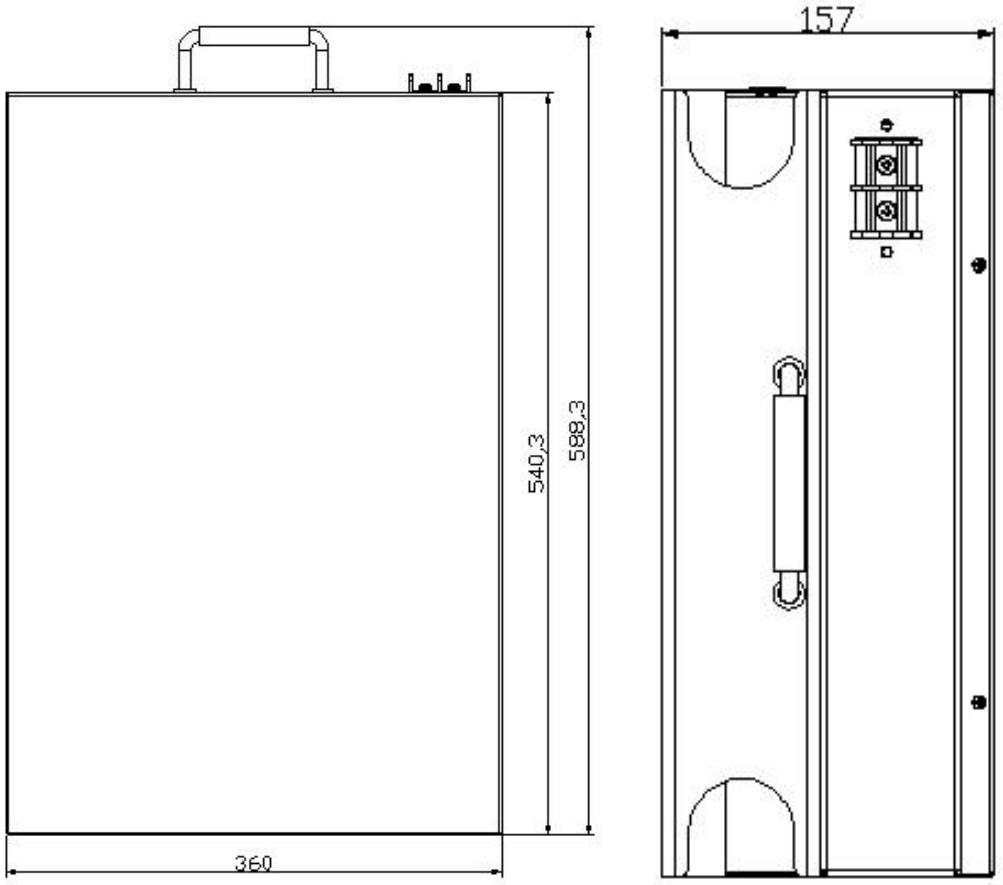


Figure 2-2Battery pack appearance

Battery parts list：

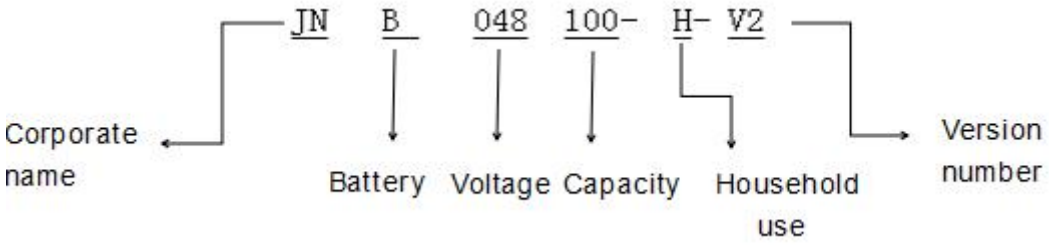
No.	Name	Description
1	Battery output	Connect with bat + and bat -
2	Handle	When installing, lift up the battery
3	Button switch	Short press this button to turn on the battery. If the battery is not used for a long time, press this button for 3S, and the battery will turn off
4	RS485 communication port	One RS485 communication port is used to communicate with the off network all-in-one machine, and the other battery is used in parallel
5	Dial switch	The default value is 0000. Refer to the manual for parallel operation
6	Status indicator	Displays whether the current battery status is standby, charging or discharging
7	pylons	For installing expansion screw when hanging up
8	Fault indicator	When the battery has fault, this indicator light is on, when there is no fault, the indicator light is off
9	Power indicator	Display the current remaining battery power

2.2.2 Production Dimensions



2.2.3 Product Name

The way of product naming, take JNB048100-H-V2 for example:



3 Battery unpacking and installation

3.1 Unpacking Inspection

To ensure system installation goes smoothly, please check before unpacking. Specific inspection items are as follows:

- Check whether the outer packing is in good condition.
- Unpack, and check up the products damage or not.
- Contrast to packing list, to check whether all accessories is correct and in good condition.

Standard Battery and some common used accessories are as follows, specific models and qty. please check up with installation list：

Figure 3-1 Battery and standard accessories

Diagram 3-1 Battery and Accessories sheet

No.	Description	Dispatch status
1	Battery	Standard
2	Negative wire harness	Standard
3	Positive wire harness	Standard
4	Communication line	Standard
5	Stainless steel expansion bolt	Standard
6	Installation list	Standard
7	User manual	Standard
8	Quality Certification	Standard

3.2 Prepare Installation Tools

Battery installation and wire installation tools are as follows，installation workers need to use tools as per request of follow sheet without any mistake.

Diagram 3-2 Installation Tools List

Diagram sketch	Name	Recommended spec.	Function
	Cross screwdriver	Φ4	Use for cable installation
	adjustable spanner	300mm	Use for nut assembly, battery installation
	Impact drill	Φ10	Use for drilling hole and battery installation
	Hammer	6Pounds	Use for striking expansion screws

3.3 Hanging-mounted Installation

Step 1: After selecting the appropriate installation position, drill holes according to the size and shape of the pylon in the attachment, with the hole diameter of 10mm and the depth of 90mm.

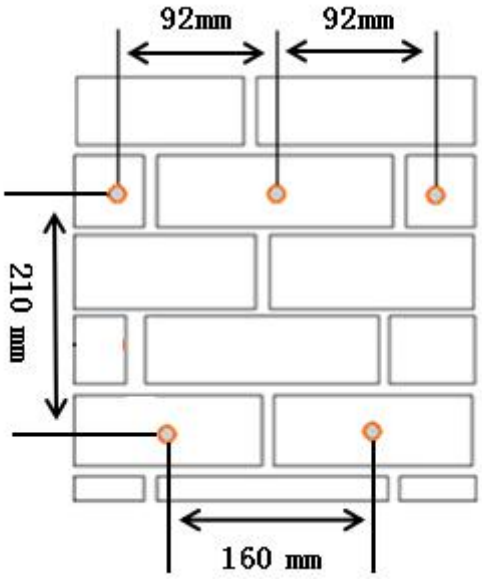


Figure 3-2 installation diagram

Step 2: Use a hammer to knock 5 expansion bolts into the wall holes, fix the pylon on the wall, and finally tighten the expansion bolts. The tightening torque of the expansion bolts is 35n. M.

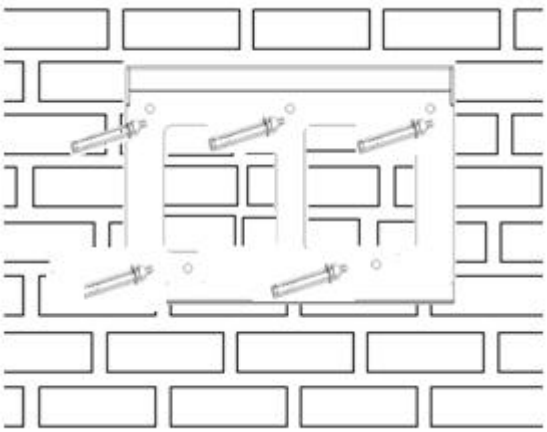


Figure 3-3 installation diagram

Step 3:Hang the mounting lug on the back of the battery to the rack until the battery is firmly installed on the rack.

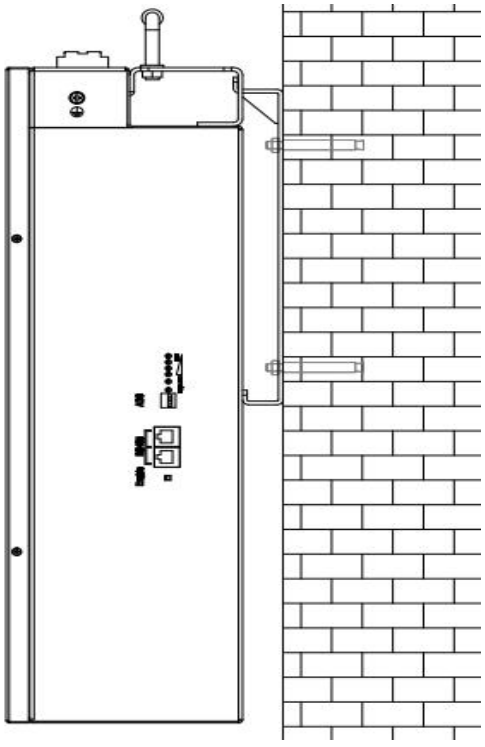


Figure 3-4 side view diagram

3.4 Electrical connection

⚠Before connecting the battery output + / -, please make sure that the battery switch is off !

3.4.1Diesel Generator Connection

Step 1: Remove the plastic protective cover.

Step 2: Connect one end of the red cable to the battery positive and fix it with its own screw.

Step 3: Connect one end of the black cable to the battery negative and fix it with its own screw.

Step 4: Put on the protective cover.

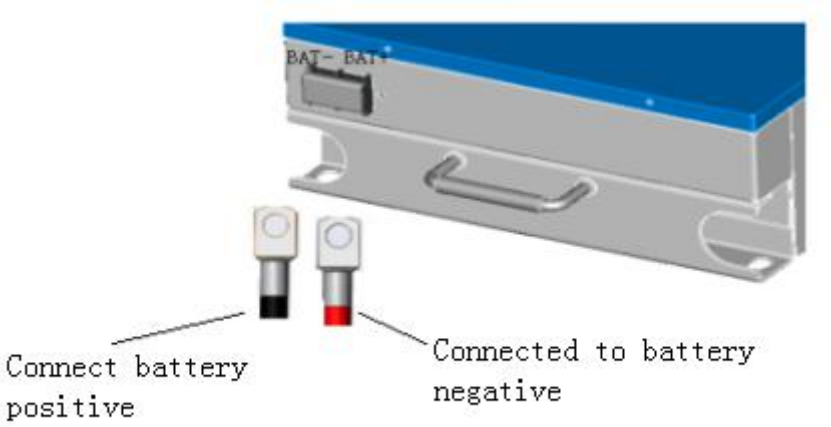


Fig. 3-5 schematic diagram

3.4.2 Communication connection

As shown in Figure 3-6,JNB048100-H-V2 lithium ion battery communication interface.

Fig. 3- 6 schematic diagram

With the communication network cable in the delivery list, one end is inserted into the battery communication interface, and the other end is inserted into the COM port of the off network all-in-one machine.

Explanation!

Off grid integrated machine specially refers to the inverter products produced by our company.

4 Battery commissioning

4.1 Electrical Connection Inspection before Commissioning

Before commissioning, electrical connection inspection should be done strictly，to ensure safety of the Batteras well as the personal safety; To prevent accidents, specific inspection items as follows:

(1) Make sure that the positive and negative wires of lithium-ion battery are correctly connected with bat + and bat - of all-in-one machine.

(2) Use a special communication line to ensure that one end of the communication line is plugged into the RS485 port of the lithium-ion battery, and the other end is inserted into the COM port of the off grid all-in-one machine.

(3) Lithium ion battery dial switch address (default 0000) is set correctly.

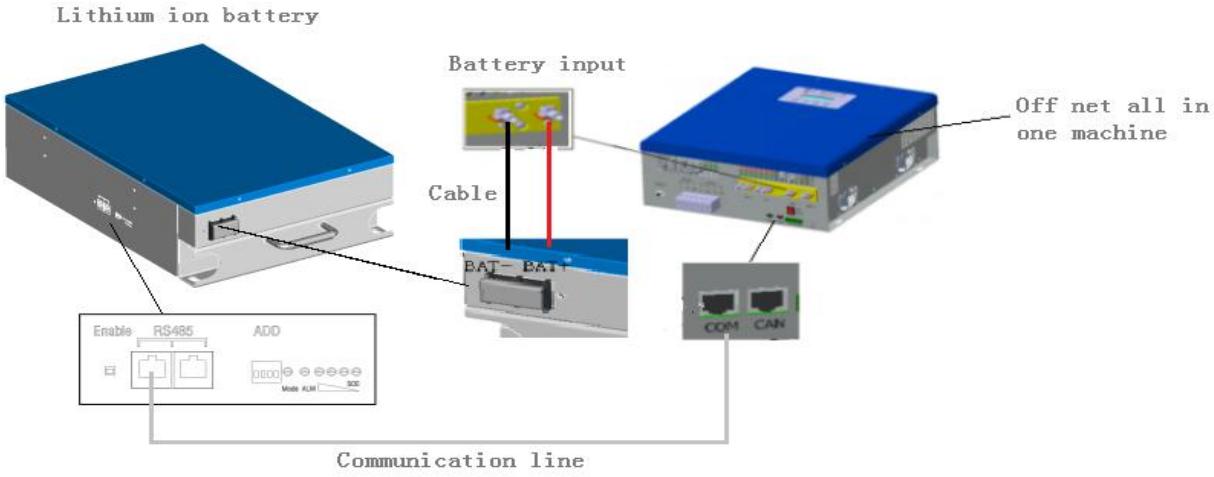


Fig. 4-1 schematic diagram

4.2 Commissioning and operation of single battery

Step 1: turn on the battery switch.

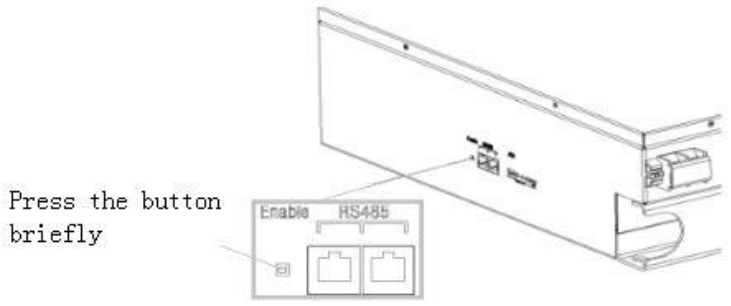


Fig. 4-2 schematic diagram

Step 2: turn on the off grid all in one machine switch.

Fig. 4-3 schematic diagram

Step 3: LCD parameter setting of off grid all in one machine.

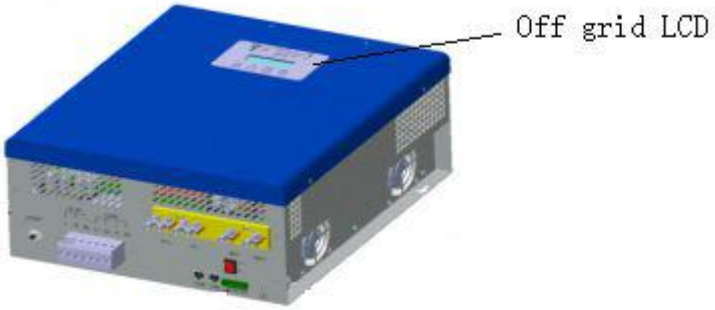


Fig. 4-4 schematic diagram

Perform the following operations on the LCD operation interface of the off grid all in one machine:

BmsEn set to Enable；BmsType set to CSW-V20；PackNun set to 1.

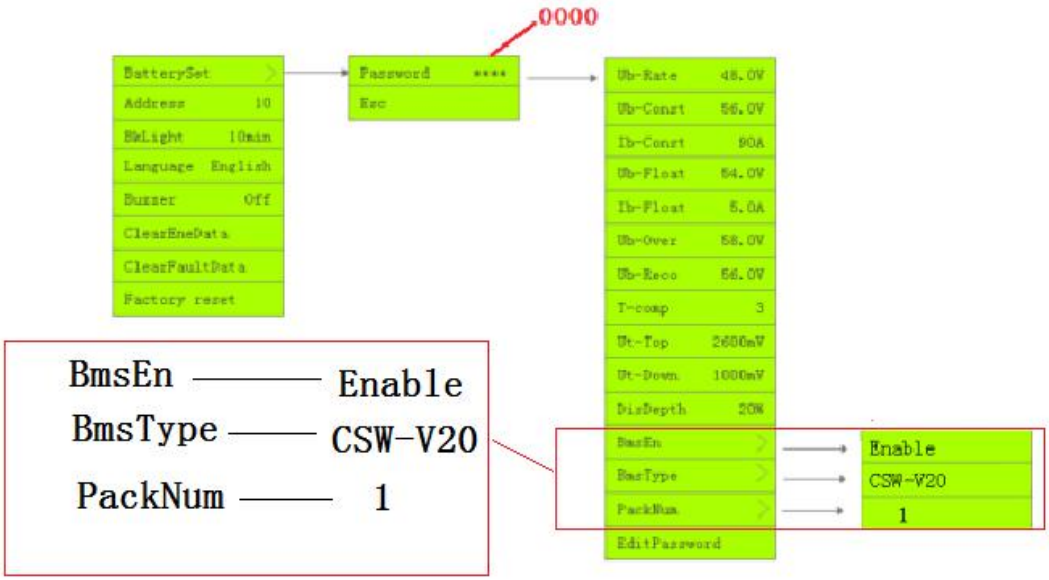


Fig. 4-5 schematic diagram

4.3 Commissioning and operation of parallel storage battery

⚠ When two or more lithium-ion batteries are used in parallel, please refer to the following operation.

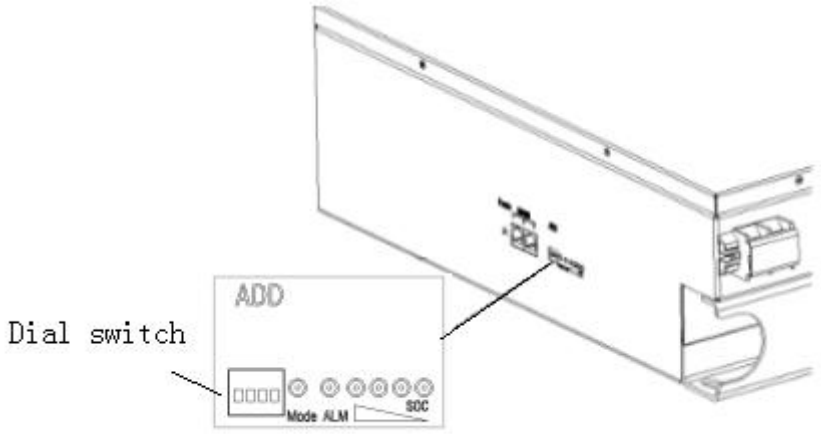
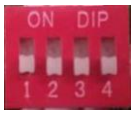
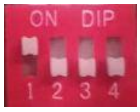
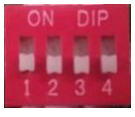
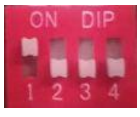
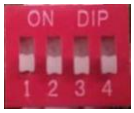
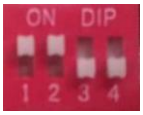
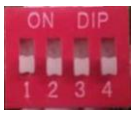
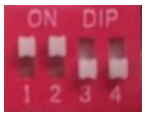
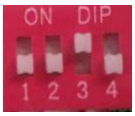


Fig. 4-6 schematic diagram

Setp 1:Set the dial switch address

According to the number of parallel machines, the dial switch is set according to the table below:

Number of parallel machines	Dial switch address settings are as follows
2	The first one 0000  Second channel 1000 
3	The first one 0000  Second channel 1000  The third channel 0100 
4	The first one 0000  Second channel 1000  The third channel 0100  Channel 4 1100 

5	The first one 0000 	Second channel 1000 
	The third channel 0100 	Channel 4 1100 
	Channel 5 0010 	

Step 2: DC connection

Use the battery positive wire harness in the delivery list to connect with the positive pole of the off grid all-in-one machine.
Use the battery negative wire harness in the delivery list to connect with the negative pole of the off grid all in one machine.

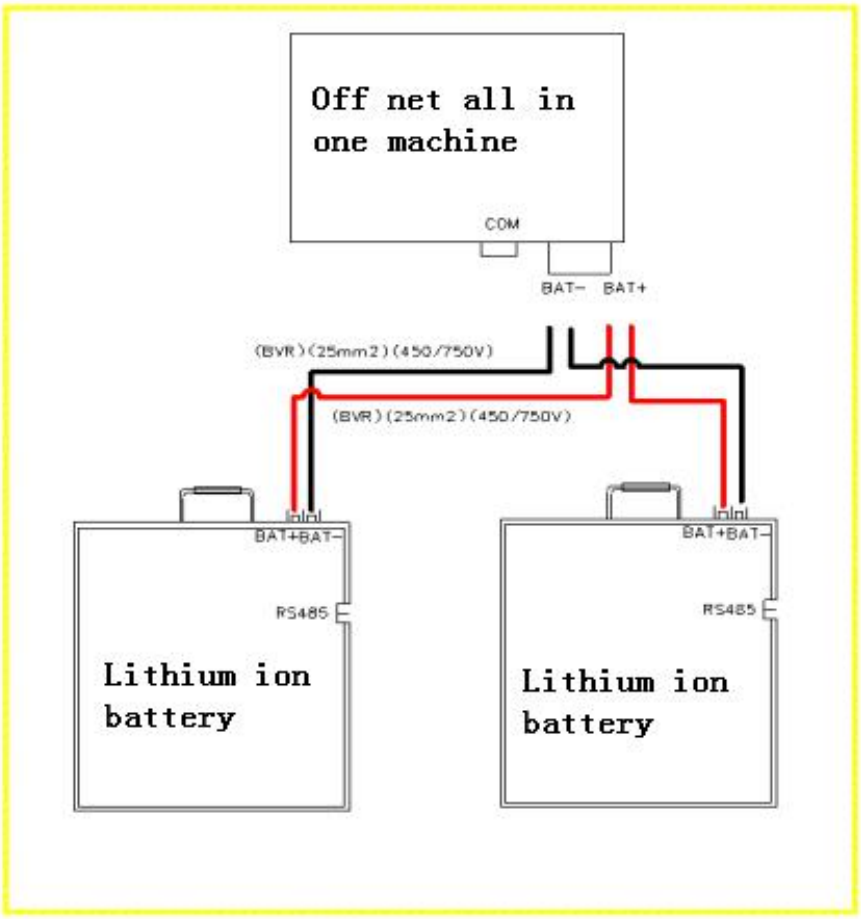


Fig. 4-7 high voltage line connection diagram of two parallel units

Step 3：Communication connection

Use the communication line in the delivery list to connect each battery pack RS485 port in turn.

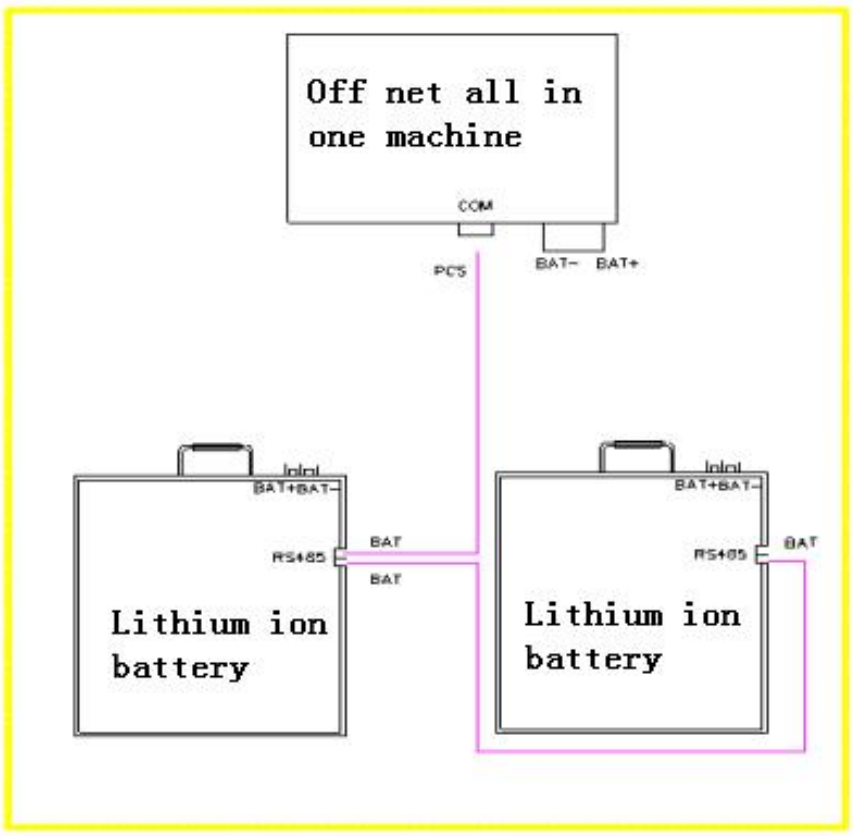


Fig. 4-8 Connection diagram of two parallel communication lines

Step 4： LCD parameter setting of off grid all in one machine

Explanation!

Refer to 4.2 for the starting method of battery switch on and off grid all-in-one machine.

BmsEn set to Enable；BmsType set to CSW-V20；PackNun set to 2.

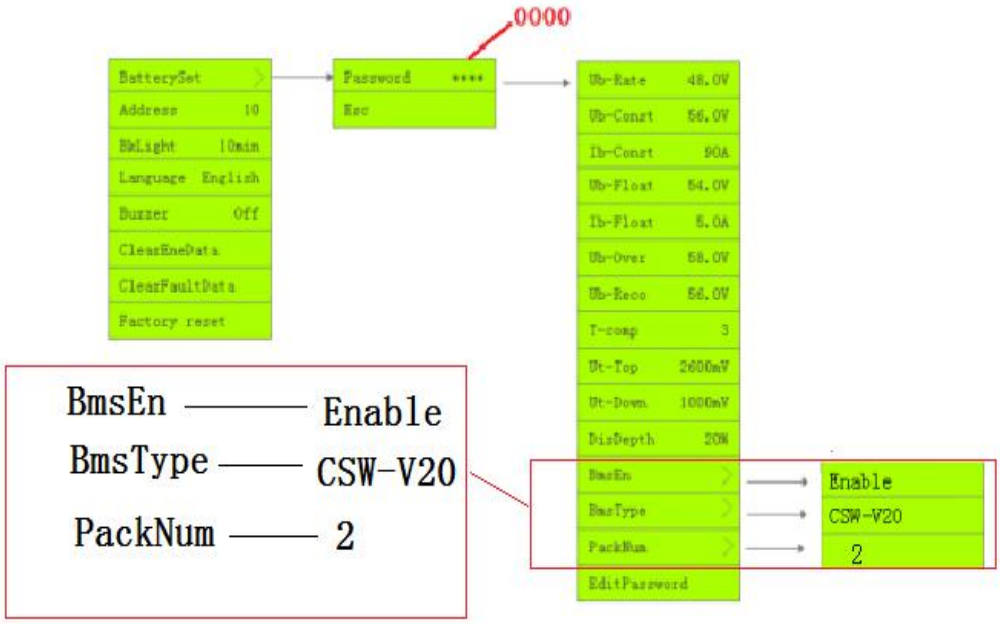


Figure 4-9 schematic diagram of LCD parameter setting of two parallel and off grid integrated machines

5 Common Troubleshooting and Maintenance

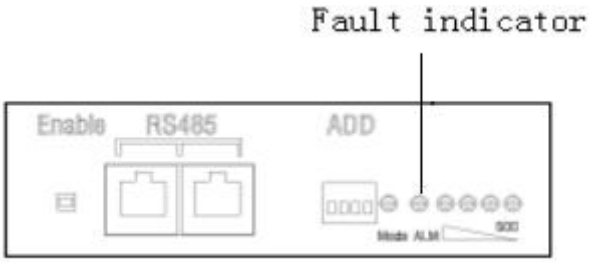


Fig.5-1 schematic diagram

If the battery fault indicator light is on, please find the corresponding fault information on the LCD of the off grid all in one machine and solve the problem by referring to the table below:

Fault code	Implication	Possible reason	Solution
/	No output from battery	Check whether the output connection is reliable or the battery pack is in opto mechanical state	Please re connect or press the battery pack enable key for a short time
PXX-53	Single over-voltage	stop charging	off grid all-in-one machine is controlled by itself without operation
PXX-54	Monomer under voltage	Start grid, photovoltaic charging, stop inverter	Insufficient power, please charge in time
PXX-55	Total pressure overpressure	Stop charging	off grid all-in-one machine is controlled by itself without operation
PXX-56	Total voltage under voltage	Start grid, photovoltaic charging, stop inverter	Insufficient power, please charge in time
PXX-57	Charging high temperature	Stop charging and inverter	Contact customer service
PXX-58	Charging low temperature	The working environment of battery pack is not suitable below 0 ℃	Please keep the battery pack warm or move it indoors

PXX-59	Discharge high temperature	Stop charging and inverter	Contact customer service
PXX-60	Discharge low temperature	The working environment of battery pack is not suitable below 0 ℃	Please keep the battery pack warm or move it indoors
PXX-61	High ambient temperature	Stop charging and inverter	Contact customer service
PXX-62	Low ambient temperature	The working environment of battery pack is not suitable below 0 ℃	Please keep the battery pack warm or move it indoors
PXX-63	Power high temperature	Stop charging and inverter	Contact customer service
PXX-64	Charging over current	Detect the charging over-current for 10s, stop charging, detect 3 times continuously within 70s, and lock the alarm	Please configure photovoltaic panel reasonably
PXX-65	Discharge over current	Detect the discharge over-current for 10s, stop the inverter, detect 3 times continuously within 70s, and lock the alarm	Please reduce the load
PXX-68	Low capacity alarm	The remaining power is too low	Insufficient power, please charge in time
PXX-50	Cell pressure difference alarm	fault	Contact customer service
PXX-51	Charging MOS fault	fault	Contact customer service
PXX-52	Discharge MOS fault	fault	Contact customer service
PXX-81	Communication failure	Check whether the communication line is loose	Please plug in the communication line again

6 appendix A technical parameters

performance parameter	JNB048100-H-V2
Rated capacity	100Ah
Rated energy	5.2kWh
Battery type	Lithium ion battery
Maximum charging current	100A
Maximum discharge current	100A
energy efficiency	98%
Voltage range	40V-60V
working temperature	0℃~+55℃
Storage temperature	-20℃~+70℃
Box size	540mm*360mm*157mm
Protection level	IP30
Under voltage protection	possess
Over voltage protection	possess
Over current protection	possess
Temperature protection	possess
Short circuit protection	possess
Installation mode	Wall hanging and horizontal laying
Communication mode	RS485
cycle life	3000 times (80% DoD)
Pack parallel number	(1-8 sets) optional