Lithium Iron Phosphate Battery Module

Application Manual

LITHIUM BATTERY

Read and follow these instructions!

The following precautions are intended to ensure your safety and prevent property damage. Before installing this product, be sure to read all safety instructions in this document for proper installation.

	**⚠ DANGER** Failure to comply with the instructions with this symbol may result in a serious accident, causing death or a severe injury.
	**⚠ WARNING** Failure to comply with the instructions with this symbol may result in a serious accident, causing a severe injury.
	**⚠ CAUTION** Failure to comply with the instructions with this symbol may result in minor or moderate injury.
	***NOTICE*** Provides information considered important but not hazard-related. The information relates to property damage.
	Read instruction before use
	Risk of electric shock
	Operate as specified by the manual

This product is designed to an integrated system, which must be performed by a qualified person trained in electrical engineering and familiar with the characteristics and safety requirements of lithium batteries. Do not use this product if you are unsure if you possess the necessary skills to complete this integration.

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1. Precautions

1.1 General Safety Precautions

The product provides a safe source of electrical energy when operated as intended and as designed. Potentially hazardous circumstances such as excessive heat or electrolyte mist may occur under improper operating conditions, damage, misuse and/or abuse. The following safety precautions and the warning messages described in this part must be observed.

If any of the following precautions are not fully understood, or if you have any questions, contact us for guidance.

Risks of explosion

- Do not subject the battery to strong impacts.
- Do not crush or puncture the battery.
- Do not dispose of the battery in a fire.

Risks of fire

- Do not expose the battery o temperatures in excess of 60℃.
- Do not place the battery near a heat source such as a fireplace.
- Do not expose the battery to direct sunlight.
- Do not allow the battery connectors to touch conductive objects such as wires.

Risks of electric shock

- Do not disassemble the battery.
- Do not touch the battery with wet hands.
- Do not expose the battery to moisture or liquids.
- Keep the battery away from children and animals.

Risks of damage to the battery

- Do not allow the battery to come into contact with liquids.
- Do not subject the battery to high pressures.

1.2 Installation Precautions

Please be aware that a battery presents a risk of electrical shock including high short-circuit current. Follow all safety precautions while operating the batteries.

- Remove watches, rings, and other metallic accessories.
- Use tools with insulated handles in order to avoid inadvertent short circuits.

- Wear rubber gloves and safety boots.
- Do not put tools or any metal parts on the top of the batteries.
- Disconnect charging source and load before connecting or disconnecting terminals.
- When moving batteries and wear all appropriate safety clothing and equipment.
- Do not open or mutilate the batteries.

⚠ CAUTION

- Verify polarity at all connections before energizing the system. Reverse polarity at the battery terminals will void the Warranty and destroy the batteries. Do not short circuit the batteries.
- Do not combine Lithium Batteries with other brands or chemistries; Do not mix Lithium Batteries from different installations, clients, or job sites.
- Do not disassemble or modify the battery. If the battery housing is damaged, do not touch exposed contents.

2. Product Introduction

48 V series lithium iron phosphate battery system has been designed to provide backup power for different kinds of energy storage systems. These modules have characteristics of high system integration, well reliability, long service life, and wide operating temperature range.

2.1. Front Panel Function Introduction

In order to operate the product correctly, please carefully view the function of the front panel of the battery.

Figure 2-2: Front Panel Function Introduction

1. Reset: When the BMS is in the dormant state, press the button for 1S to activate the BMS. Meanwhile, the LED indicator will be lit to show SOC of the battery. When the BMS is in the active state, press the button for 3S to cause battery dormant. Then the LED indicator light will be lit from "RUN" for 0.5 seconds.
2. ADD: DIP switch, used for setting the product communication address when communication cascade;
3. SOC: These 4 LEDs are used to display the pack SOC. The lightning of these LEDs indicates the SOC of 25%, 50%, 75%, and 100%. For example, when SOC >75%, all 4 LEDS will be light up. If SOC> 50% and <75%, 3 LEDs will be light up. Etc.
4. ALM: Warning light;
5. RUN: Indicate the alarm or the run status of the battery.
6. RS485: Communication interface: Used for RS485/CAN communication;
7. RS232: Connect with upper computer for battery system debugging and software upgrade.
8. Handle: It was used to carry/move the battery.
9. Used for fixing with cabinet.
10. Positive output terminal.
11. Negative output terminal.
12. Grounding bolt.
13. External switch interface.

2.2 Product Specifications

Table 2-1: Product Specifications

Basic Parameters	
Model	FCIFP48100A
Anode Material	LiFePO4
Nominal Voltage（V）	48
Layout	15S1P
Rated Capacity（Ah）	100（0.5C，25℃）
Rated Energy（kWh）	4.8
Dimensions(W×D×H)mm	440×440×133（3U）
Weight（kg）	42(About)
Communication	RS485,CAN
Cycle Life	6000+（80%DOD,25℃）
Electrical Characteristics	
Voltage Window（V）	40.5～54
Charge Current（A）	50(Recommend)
Max Charge Current（A）	100
Max Discharge Current（A）	100
Operation Environment	
Charge Temperature（℃）	0℃～50℃ （Optimum15℃～30℃）
Discharge Temperature（℃）	- 20℃～50℃ （Optimum5℃～45℃）
Storage Temperature（℃）	- 20℃～55℃
Storage Humidity（RH）	5%～90%
Working Humidity（RH）	5%～90%
Protection Class	IP20

Products specifications described herein are subject to change without prior notification.

2.3 State Indicator

Table 2-2: Unprotected fault working mode

State	SOC(%)	RUN	ALM	25%	50%	75%	100%
shutdown		No light	No light	All no light			
Standby/Discharge	0-25%	Flash	No light	Light	No light	No light	No light
	25-50%			Light	Light	No light	No light
	50-75%			Light	Light	Light	No light
	75-100%			Light	Light	Light	Light
Charge	0-25%	Flash	No light	Flash	No light	No light	No light
	25-50%			Light	Flash	No light	No light
	50-75%			Light	Light	Flash	No light
	75-100%			Light	Light	Light	Flash

Note: Flash: Light 0.5s, No light 0.5s

Table 2-3: Protected fault working mode

When the BMS detects a protection fault, the RUN indicator flashes from on for 0.5s to off for 0.5s, to off for 0.5s and then on, waits for the ALM indicator to turn off for 0.5s after flashing according to the fault, and repeats this cycle.

State	RUN	ALM	SOC(%)	25%	50%	75%	100%
Protection status	No light 0.5s and always Light	Fault content	0-25%	Light	No light	No light	No light
			25-50%	Light	Light	No light	No light
			50-75%	Light	Light	Light	No light
			75-100%	Light	Light	Light	Light

Table 2-4: Fault code

RUN always Light and ALM flashes	Fault	RUN always Light and ALM flashes	Fault
1	Total pressure high	13	Ambient high temperature

2	Total pressure low	14	Analog front end Fault
3	Cell voltage is too high	15	EEPROM Fault
4	Cell voltage is too low	16	short circuit Fault
5	Monomer high temperature	17	low SOC
6	Monomer low temperature	18	temperature rise too fast
7	high differential pressure	19	Precharge failed
8	low temperature difference	20	MOS out of control
9	Overcurrent	21	ADC Fault
10	Voltage cable	22	limit Fault
11	temperature cable	23	Customize
12	MOS High temperature Fault	24	Customize

3. Unpack the Battery

The battery and the related accessories are packed in the carton box and steel belt wooden box. Use tools to open the packing box. After open the packing box, confirm the product components according to the parts list.

	**⚠WARNING** Violent unpacking is strictly prohibited. If the battery system is found to be broken, deformed or other abnormal conditions, the user shall immediately stop using the battery and contact us.

3.1 Parts List

Check the parts during unpacking.

Table 3-1: Parts Lists

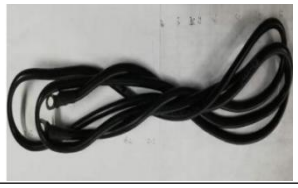
No.	Items	Appearance	Usage	Remarks
1	Battery		Provide power	
2	Positive output cable		Connect the battery and inverter	
3	Negative output cable		Connect the battery and inverter	
4	RS485 communication line		Apply to Modbus protocol. Connect the battery and the computer.	Used to monitor and debug the battery (Optional)
5	RS485 communication line		Battery cascade line. Connect the RS485 communication interface between the adjacent battery	Standard RJ45 network cable
6	External switch line		Battery external switch	
7	Cabinet bolt		Fix the battery on the rack or cabinet	

Table 3-2: Recommended Tools and Instruments

No.	Items	Usage	Appearance
1	Phillips Screwdriver or Bit	To fasten battery and assemblies	
2	Box Cutter	Opening boxes	
3	Insulated Torque Wrench	Installing cables and busbars	
4	Insulated Sockets	Installing cables and busbars	
5	Battery Tester	Measure battery module's voltage	

3.2 Visual Inspection of the Modules

After transporting the modules to the installation location, check for:

- Physical damage to the exterior
- Damaged or protruding screws

4. Battery Installation

This system must be installed by qualified, trained workers familiar with the required instruments.

	⚠ WARNING

	▪ Be sure to use insulated tools (torque wrench, extension, socket, etc.). ▪ All the instruments must be insulated and no metal articles (e.g. watch, ring) should be present in the installation area. ▪ All power switches must be turned off in advance. ▪ Prepare a CO_2 fire extinguisher, a first aid kit, and an AED (automated external defibrillator) before installation.

	**⚠ WARNING**
	Arc Flash and Shock Hazard Insulated tools are required for any work on this energized equipment.

	**⚠ WARNING**
	Sharp Edges Wear gloves and other protective gear to prevent injury.

	**⚠ WARNING**
	Pinch Point Use caution when working in the enclosure to prevent injury.

	**⚠ CAUTION**
	Heavy Object Can cause muscle strain or back injury. Use lifting aids and proper lifting techniques when moving trays, batteries and other heavy objects.

4.1 Battery Module Installation

1. Transport battery modules to the installation location.
3. Place the battery modules on the rack frame or cabinet.
4. Fix the battery on the rack. Using the cabinet bolt to fix the battery into the hole on the rack.
5. After installation, tighten all bolts.

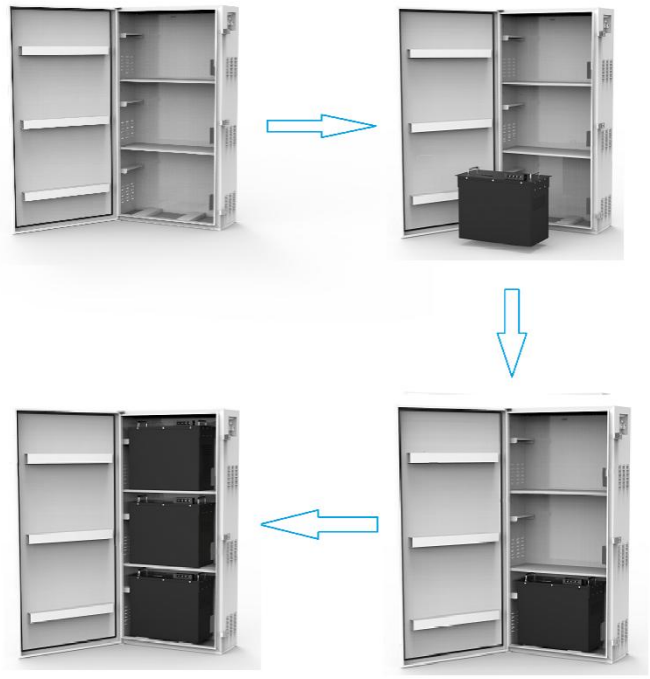


Figure 4-1: Battery Module Installation (A possible battery install procedure)

	IMPORTANT
	▪ We recommends installing battery modules in the upper shelves first and proceeding to the bottom. ▪ The battery can be mounted on a standard 19 inches cabinet or rack. ▪ Battery modules can be inserted into a rack frame according to the customer battery configuration scheme.

5. Cable Connection

5.1 Single Battery Connection

	NOTICE
	▪ Before connect the cable with the inverter, the worker must confirm the output switch of the inverter has been turn off, to prevent the risk of fire or electric shock.

	⚠ CAUTION

- Before connection, make sure to close the battery.
- Please follow the instructions to protect the module BMS against damage.
- DO NOT deviate from the sequence of steps below.
- Exercise extreme caution prevent the terminals from contacting anything except their intended mounting points.
- Terminals and their connected wires have either positive or negative polarity (Positive: +; Negative-). The polarity of a terminal or a wire connected to the terminal is on the front of each module. Exercise extreme caution to prevent the terminals and/or wires with opposite polarity from contacting with each other.
- In telecom and battery, it is typically designed that positive is grounded. Therefore, it is necessary to avoid any non-insulating contact between the negative terminal and the positive terminal of the battery or the rack during the connection process. This can effectively avoid issues such as sparking or short circuit.
- The maximum voltage of the battery is no more than 60V, which is higher than the safe voltage of 36V. Therefore, we still recommend that the battery terminals or other exposed parts should not be directly touched

NOTICE

- When tightening the screws, make sure they are at a straight angle from the battery module terminals to avoid damage to the nuts inside.
- Assemble the screws using a Phillips-head within the fastening torque of less than 8.0 Nm (79.88 kgf/cm).

IMPORTANT

- The power terminals, such as “+,” “-,” of the module are covered with the protecting cover to guard against a short circuit (Shown in Figure 5-1).
- You must remove the insulation cover prior to connecting and reattach the insulation cover immediately after connecting.

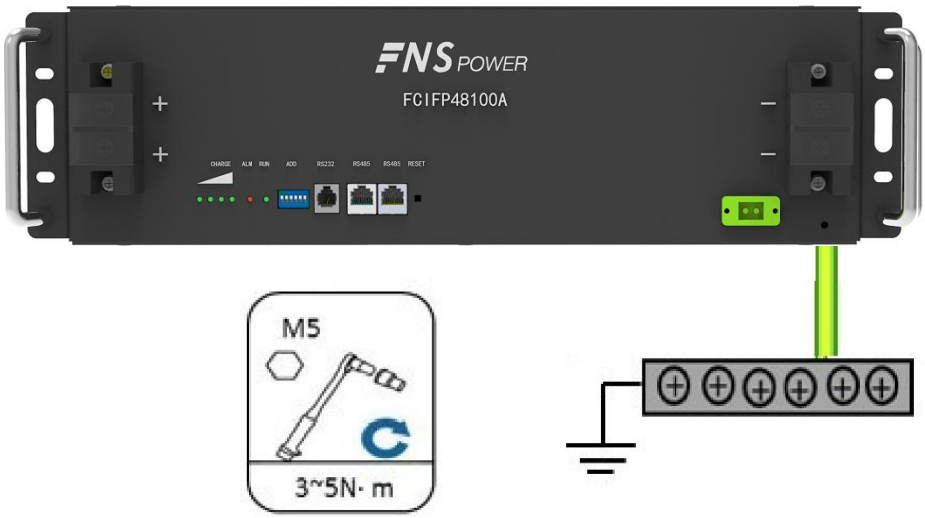


Figure 5-1: Install the Grounding Wire

Step 1 Wear the protective gloves. Step 2 Install the battery ground cable.

Step 3 Install negative and positive power cables for the battery.

1) Remove the protective cover from the battery power wiring terminal.

2) Connect the negative power cable to the battery.

3) Connect the positive power cable to the battery.

4) Install the other end of the battery power cables at a battery route and the corresponding RTN+ busbar in the power system.

5) Reinstall the protective cover on the battery power wiring terminals.

1. Remove the protecting cover.

2. Take-down positive fixing bolt by the Phillips Screwdriver and connect the positive output cable between the battery positive terminal of the battery and the inverter. After connecting the battery, fastening bolt immediately to avoid dropping.

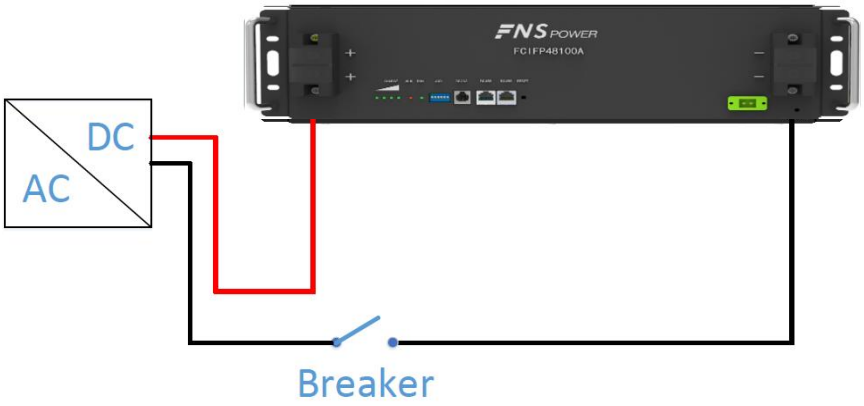


Figure 5-2: Single Battery Connection

3. Take-down negative fixing bolt by the Phillips Screwdriver and connect the negative output cable between the battery negative terminal of the battery and the inverter. After connecting the battery, fastening bolt immediately to avoid dropping.

4. Install the protecting cover.

5. Sort the cables and fasten the battery cables to the perforated bracket with cable ties.

6. Communication Line Connection

As shown in Figure 5-4, when monitoring the battery by the computer, connect the 'USB convert to RS485' communication line between battery and computer.

Figure 5-3: Communication Cable Connections between Battery and Computer

5.2 Connect Cables of the Multiple Batteries in Parallel

When multiple batteries in parallel, the cable connecting procedures are follows.

1. As shown in Figure 5-5, following the cable connection method of the single battery, connect the positive and negative cables between the Battery 1 and the busbar, Battery 2 and the busbar, and Battery N and the busbar respectively.

Note: To ensure the current balance, please use cables with the same diameter and length for each battery.

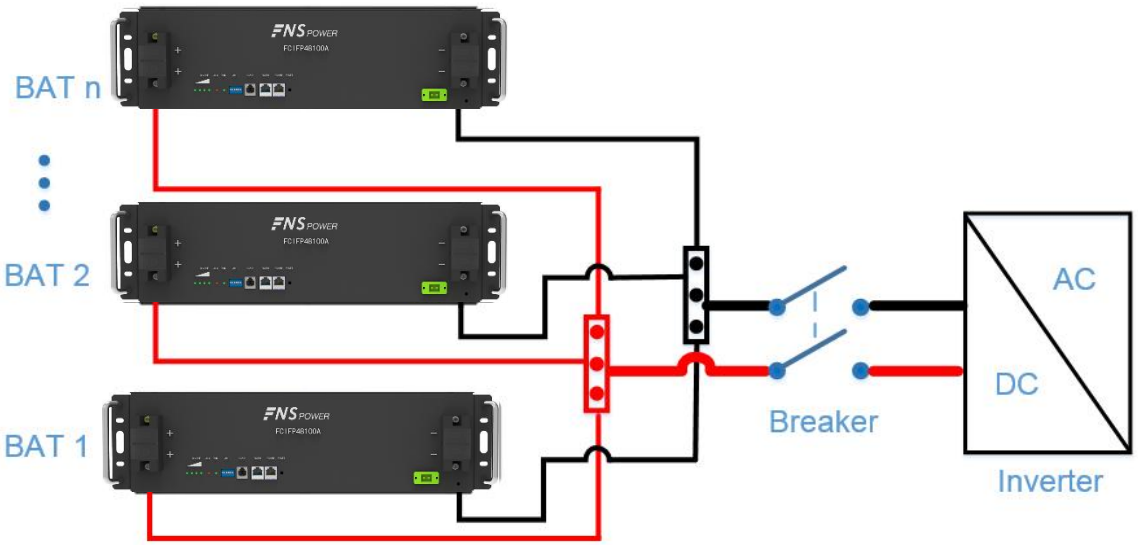


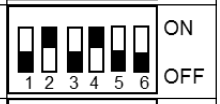
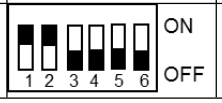
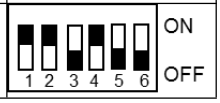
Figure 5-4: Multiple Batteries Connections

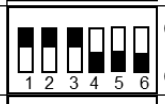
2. As shown in Figure 5-7, connect the communication line (a standard RJ45 network cable) between the adjacent batteries.

3. When performing multi-machine parallel communication operation, it need to configure the dialing address of each battery. The dialing code is in BCD format, and the address 0 is defined as

. The dialing address configuration of each battery is shown in Table 5-1. According to the number of the battery in parallel, set the dialing address of the corresponding battery.

Table 5-1: The Dialing Address Configuration of Each Battery

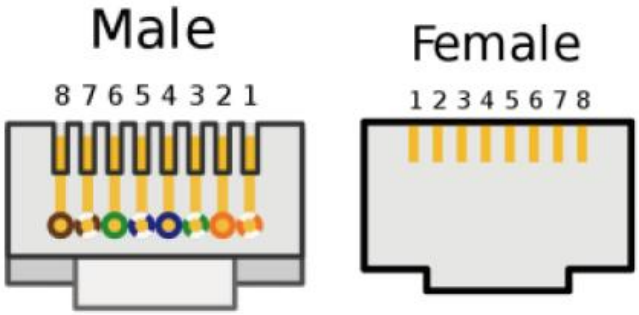
No.	Module Address	Battery Module ID	Picture	No.	Module Address	Battery Module ID	Picture
1	0x01	1		9	0x09	9	
2	0x02	2		10	0x0a	10	
3	0x03	3		11	0x0b	11	

4	0x04	4		12	0x0c	12	
5	0x05	5		13	0x0d	13	
6	0x06	6		14	0x0e	14	
7	0x07	7		15	0x0f	15	
8	0x08	8					

Note: After the DIP settings are changed, a restart is required to take effect.

4. Connect the communication line between battery and computer

(1) RS485/CAN Port Definition



(a) RJ45 Pin Male (b) RJ45 Pin Female

Figure 5-5: Communication Port

Table 5-2: Description of RJ45 Pin

RJ45 Pin	Signal	Meaning	Description
1	RS485 B		2-wire RS485 communication, complying with the Modbus protocol
2	RS485 A		2-wire RS485 communication, complying with the Modbus protocol
3	NC	Reserved	
4	CAN H		2-wire CAN communication, complying with the CAN protocol

5	CAN L		2-wire CAN communication, complying with the CAN protocol
6	NC	Reserved	
7	RS485 A		RS485 communication, complying with the Modbus protocol, connect to Pin2 in parallel
8	RS485 B		RS485 communication, complying with the Modbus protocol, connect to Pin1 in parallel

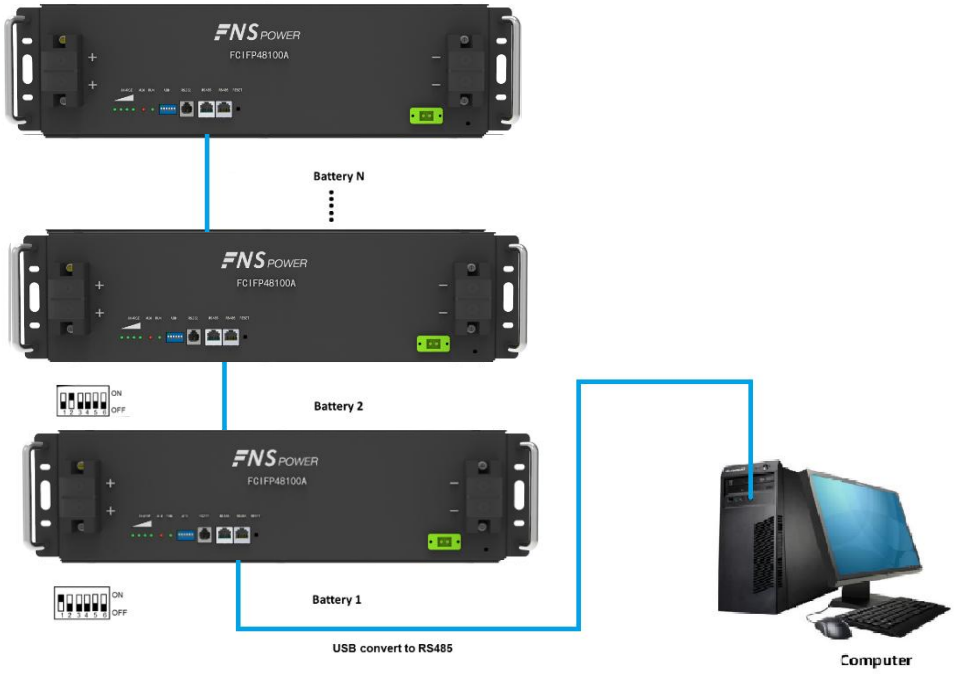
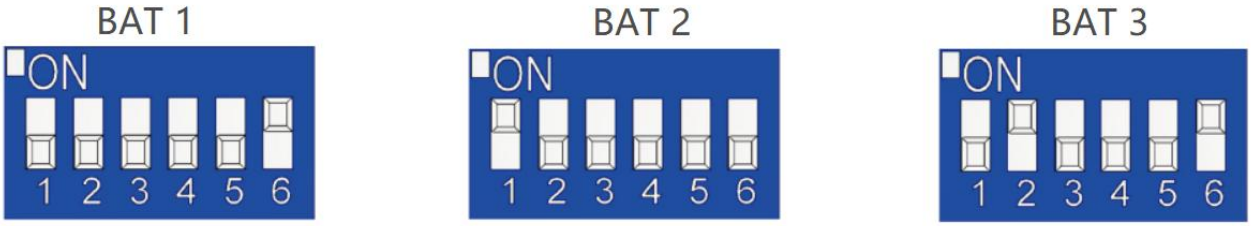


Figure 5-6: Communication Cable Connections among Multiple Batteries

5.Connect the communication line between battery and inverter

- Keep the battery off.
- Connect the inter-battery communication cascade.
- RS485 communication line connecting the inverter to the battery.
- Adjust the DIP switch, the largest dip switch address is the last battery.
- When the batteries are connected in parallel, the DIP bit (sixth bit) of the first battery and the last battery must be turned to ON. The following three are connected in parallel.



- When the battery communicates with the inverter through RS485, the matching resistor must be inserted into the RS485 connector of the last battery in parallel.
- Note: When only one battery is connected to the inverter communication, a matching resistor is also inserted.

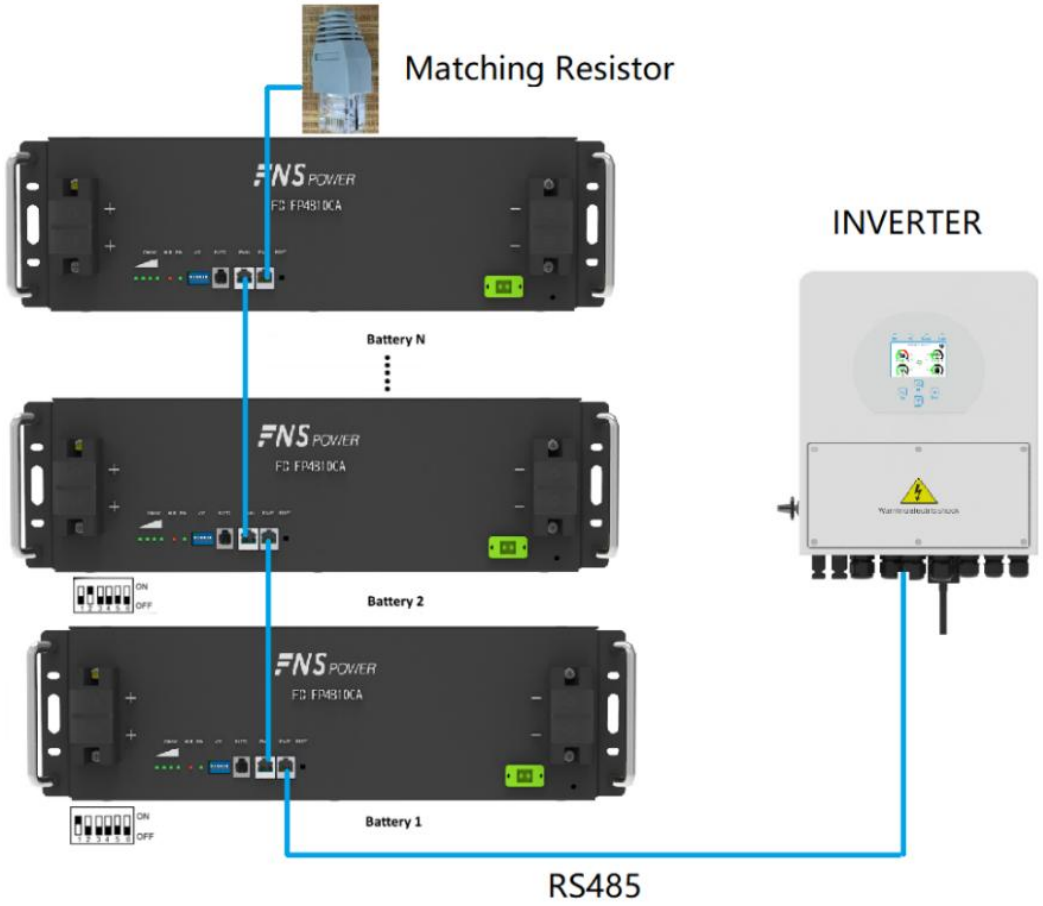


Figure 5-7: Multiple batteries connected to the inverter

5.3 Visual Inspection of the Connection

After connecting the battery, check for:

- Usage of positive and negative cables.
- Connection of the positive and negative terminals.
- All the bolts are tightened.
- Cables fixation and the appearance.
- The setting of the dialing address.
- The installation of the protecting cover.

6. Activate the Product

6.1 Start the Battery

After installation, wiring, and configuration are completed, you must check all the connection. When the connections are correctly, and then press reset button to activate the battery. The green working light on the front panel of the battery flashes, indicating that the battery system is normal.

6.2 Monitoring the Battery

(1) Application Scenarios

BMS management software can run on the PC. Through the communication with the battery module, the battery state information, such as charge and discharge current, battery voltage, monomer voltage were measured and viewed by the PC. When the current or BMS hardware problems occur, it will be displayed in a color corresponding state.

(2) Prerequisites

Windows 7 or later; Microsoft .NET Framework 4.0 or later.

A USB-to-RS485 communications cable and a PC are available. You have obtained the Battery Station monitoring software.

Installation of the Driver. The driver is stored on a CD. Chick Setup to install the driver. After the connect the communication line between the battery and the monitor device, a new Com Port can be seen in the Device Manager, indicating the successful installation of the driver.

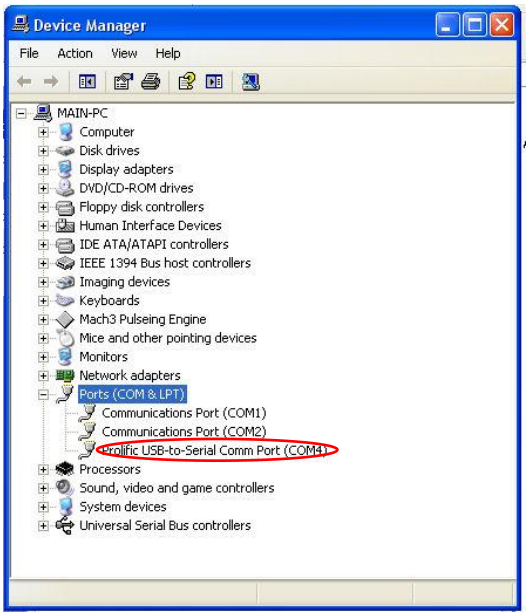


Figure 6-1: Communication Port Set

(3) Click the network software to enter the program

When the display interface shows voltage, SOC and etc., indicating that the communication is successful.

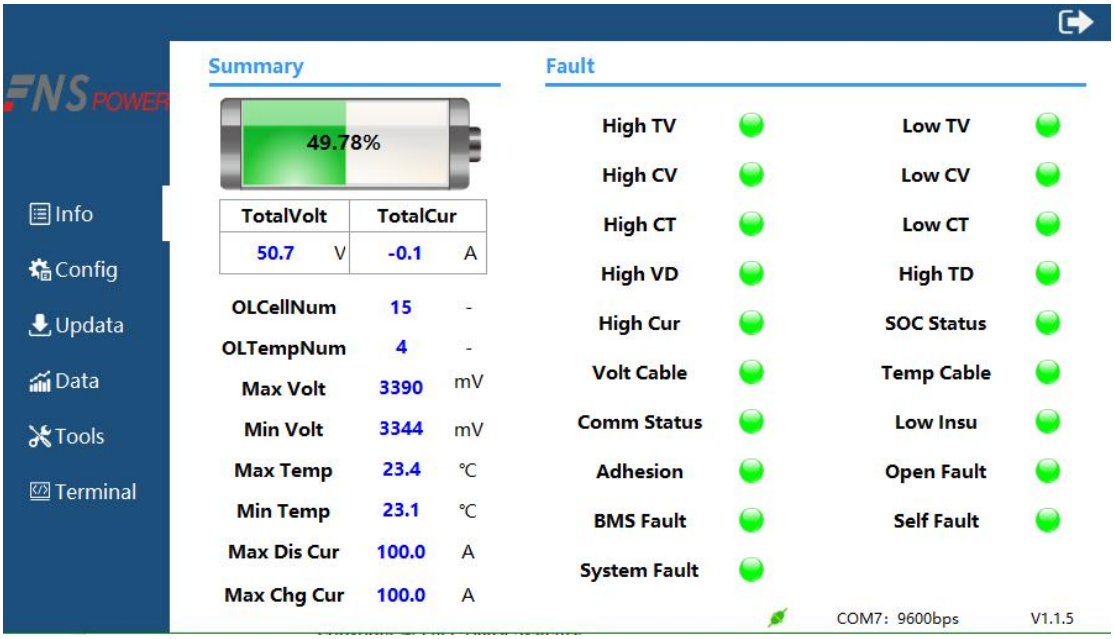


Figure 6-2: System Monitoring Program

7. Inspection, Cleaning and Maintenance

7.1 General Information

- The battery product is not fully charged. It is recommended that the installation be completed within 3 months after arrival;
- During the maintenance process, do not re-install the battery in the battery product. Otherwise, the performance of the battery will be reduced;
- It is forbidden to dismantle any battery in the battery product, and it is forbidden to dissect the battery;
- After the battery product is over-discharged, it is recommended to charge the battery within 48 hours. The battery product can also be charged in parallel. After the battery product is connected in parallel, the charger only needs to connect the output port of any product battery.
- Never attempt to open or dismantle the battery! The inside of the battery does not contain serviceable parts.
- Disconnect the Li-Ion battery from all loads and charging devices before performing cleaning and maintenance activities
- Place the enclosed protective caps over the terminals before cleaning and maintenance activities to avoid the risk of contacting the terminals.

7.2 Inspection

- Inspect for loose and/or damaged wiring and contacts, cracks, deformations, leakage or damage of any other kind. If damage to the battery is found, it must be replaced. Do not attempt to charge or use a damaged battery. Do not touch the liquid from a ruptured battery.
- Regularly check the battery's state of charge. Lithium Iron Phosphate batteries will slowly self-discharge when not in use or whilst in storage.
- Consider replacing the battery with a new one if you note either of the following conditions:
  - The battery run time drops below 80% of the original run time.
  - The battery charge time increases significantly.

7.3 Cleaning

If necessary, clean the Li-Ion battery with a soft, dry cloth. Never use liquids, solvents, or abrasives to clean the Li-Ion battery.

7.4 Maintenance

The Li-Ion battery is maintenance free. Charge the battery to approximately > 80% of its capacity at least once every year to preserve the battery's capacity.

7.5 Storage

- The battery product should be stored in a dry, cool and cool environment;
- Generally, the maximum storage period at room temperature is 6 months. When the battery is stored over 6 months, it is recommended to check the battery voltage. If the voltage is higher than 48V, it can continue to store the battery. In addition, it is needed to check the voltage at least once a month until the voltage is lower than 48V. When the voltage of the battery is lower than 48V, it must to be charged according to the charging strategy.
- The charging strategy is as follows: discharge the battery to the cutoff voltage with $0.2C_{10}A$ current, and then charge with $0.2C_{10}A$ current for about 3 hours. Keep the SOC of the battery at 40-70% when stored;
- When the battery product is stored, the source of ignition or high temperature should be avoided and it should be kept away from explosive and flammable areas.

8. Troubleshooting

To determine the status of the battery system, users must use additional battery status monitoring software to examine the protection mode. Refer to the installation manual about using the monitoring software. Once the user knows the protection mode, refer to the following sections for solutions.

Table 8-1: Troubleshooting

Fault Type	Fault Generation condition	Possible Causes	Troubleshooting
BMS fault	1. The cell voltage sampling circuit is faulty. 2. The cell temperature sampling circuit is faulty	1. The welding point for cell voltage sampling is loose or disconnected. 2. The voltage sampling terminal is disconnected. 3. The fuse in the voltage sampling circuit is blown. 4. The cell temperature sensor has failed.	Replace the battery.

Electrochemical cell fault	The voltage of the cell is low or unbalanced.	1. Due to large self-discharge, the cell over dis-charges to below 2.0 V after long-term storage. 2. The cell is damaged by external factors, and short circuits, pinpricks, or crushing occur.	Replace the battery.
Overvoltage protection	1. The cell voltage is greater than 3.75 V in charging state. 2. The battery voltage is greater than 54 V.	1. The busbar input voltage exceeds the normal value. 2. Cells are not consistent. The capacity of some cells deteriorates too fast or the internal resistance of some cells is too high.	If the battery can- not be recovered due to protection against abnormality contact local engineers to rectify the fault.
Under voltage protection	1. The battery voltage is less than 40.5 V. 2. The minimum cell voltage is less than 2.7V	1. The mains power failure has lasted for a long time. 2. Cells are not consistent. The capacity of some cells deteriorates too fast or the internal resistance of some cells is too high.	Same as above.
Charge or dis-charge high temperature protection	The maximum cell temperature is greater than 60°C	1.The battery ambient temperature is too high. 2. There are abnormal heat sources around	Same as above.
Charge low temperature protection	The minimum cell temperature is less than 0°C	1.The battery ambient temperature is too low. 2. The heater fails to work	Same as above.
Discharge low temperature protection	The minimum cell temperature is less than -20°C	1.The battery ambient temperature is too low. 2. The heater fails to work	Same as above.

By checking the above data and sending the data to the service personnel of our company, the

service personnel of our company will reply the corresponding solution after receiving the data.

9. Battery recovery

Aluminum, copper, lithium, iron and other metal materials are recovered from discarded LiFePO4 batteries by advanced hydrometallurgical process, and the comprehensive recovery efficiency can reach 80%. The specific process steps are as follows:

1. Recovery process and steps of cathode materials

Aluminum foil as collector is amphoteric metal. Firstly, it is dissolved in NaOH alkali solution to make aluminum enter the solution in the form of $NaAlO_2$. After filtration, the filtrate is neutralized with sulfuric acid solution and precipitated to obtain $Al(OH)_3$. When the pH value is above 9.0, most of the aluminum precipitates, and the obtained $Al(OH)_3$ can reach the level of chemical purity after analysis. The filter residue is dissolved with sulfuric acid and hydrogen peroxide, so that lithium iron phosphate enters the solution in the form of $Fe_2(SO_4)_3$ and Li_2SO_4, and is separated from carbon black and carbon coated on the surface of lithium iron phosphate. After filtration and separation, the pH value of the filtrate is adjusted with NaOH and ammonia water. First, iron is precipitated with $Fe(OH)_3$, and the remaining solution is precipitated with saturated Na_2CO_3 solution at 90 ℃.

Since $FePO_4$ is slightly dissolved in nitric acid, the filter residue is dissolved with nitric acid and hydrogen peroxide, which directly precipitates $FePO_4$, separates impurities such as carbon black from acid solution, leaches $Fe(OH)_3$ from filter residue respectively, and precipitates Li_2CO_3 with saturated Na_2CO_3 solution at 90 ℃.

2. Recovery of anode materials

The recovery process of anode materials is relatively simple. After the separation of anode plates, the purity of copper can be more than 99%, which can be used for further refining electrolytic copper.

3. Recovery of diaphragm

The diaphragm material is mainly harmless, and has no recycling value.

4. List of recycling equipment:

Automatic dismantling machine, pulverizer, wet gold pool, etc.

10. Transportation Requirements

The battery products should be transported after packaging and during the transportation process,

severe vibration, impact or extrusion should be prevented to prevent sun and rain. It can be transported using vehicles such as cars, trains and ships.

Always check all applicable local, national, and international regulations before transporting a Lithium Iron Phosphate battery.

Transporting an end-of-life, damaged, or recalled battery may, in certain cases, be specially limited or prohibited.

The transport of the Li-Ion battery falls under hazard class UN3480, class 9. For transport over water, air and land, the battery falls within packaging group PI965 Section I.

Use Class 9 Miscellaneous Dangerous Goods and UN Identification labels for transportation of lithium ion batteries which are assigned Class 9. Refer to relevant transportation documents. Lithium batteries and lithium ion cells are regulated in the U.S. in accordance with Part 49 of the Code of Federal Regulations, (49 CFR Sections 105-180) of the U.S. Hazardous Materials Regulations.

Visit www.iata.org for the complete transport regulations and packing instructions for this product. The relevant information for Lithium batteries can be found under “Programs” > “Cargo” > “Dangerous goods (HAZMAT)”.

Figure 10-1: Class 9 Miscellaneous Dangerous Goods and UN Identification Label

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