DYNESS
ENERGY STORAGE SYSTEM

B4850 ESS Unit

Operation Manual

TM012 Rev.005

Content

STATEMENT OF LAW

This product complies with the design requirements of environmental protection and personal safety. The storage, use and disposal of the products shall be carried out in accordance with the product manual, relevant contract or relevant laws and regulations.

Customer can check the related information on the website of Daqin New Energy Tech (Taizhou)

Co., Ltd when the product or technology is updated.
Web URL: http://www.dyness-tech.com

Please note that the product can be modified without prior notice.

1.0 SAFETY

B4850 is a high voltage DC system, operated by skilled/qualified personnel only. Read all safety instructions carefully prior to any work and observe them at all times when working on with the system

Incorrect operation or work may cause:

- injury or death to the operator or a third party;
- damage to the system hardware and other properties belonging to the operator or a third party.

1.1 Skills of Qualified Personnel

Qualified personnel must have the following skills:

- training in the installation and commissioning of the electrical system, as well as the dealing with hazards;
- knowledge of this manual and other related documents;
- knowledge of the local regulations and directives.

1.2 Symbols

	**DANGER** **Lethal voltage!** **Battery strings will produce DC power and can cause a lethal voltage and an electric shock.** **Only qualified person can perform the wiring of the battery strings.**
	**Warning** **Risk of battery system damage or personal injury.** **Do not pull out the connectors while the system is working!** **De-energize from all multiple power sources and verify that there is no voltage.**
	**Caution** **Risk of battery system failure or life cycle reduces.**
	**Read the product and operation manual before operating the battery system!**
	**Danger! Safety!**
	**Warning electric shock!**
	**Do not place near flammable material**
	**Do not install the system in an outdoor area**

	Do not reverse connection the positive and negative.
	Do not place near open flame.
	Do not place at the children and pet touchable area.
	Recycle label.
	Label for Waste Electrical and Electronic Equipment (WEEE) Directive (2012/19/EU)
	CE Marking
	The certificate label for EMC.
	The certificate label for Safety by TÜV SÜD.
	The certificate label for Safety by TÜV Rheinland.

Danger.
Batteries deliver electric power, resulting in burns or a fire hazard when they are short circuited, or wrongly installed.

Danger. Lethal voltages are present in the battery terminals and cables. Severe injuries or death may occur if touch the cables and terminals.

Warning. Do not open or deform the battery module, otherwise the product will be out of warranty scope.

Warning. Whenever working on the battery, wear suitable personal protective equipment (PPE) such as rubber gloves, rubber boots and goggles.

Warning. For battery installation, the installer shall refer to NFPA70 or similar local installation standard for operation.

Caution.
Improper settings or maintenance can permanently damage the battery.

Caution. Incorrect inverter parameters will lead to a further faulty/damage to battery.

Caution. It is very important and necessary to read the user manual carefully (in the accessories) before installing or using battery. Failure to do so or to follow any of the instructions or warnings in this document can result in electrical shock, serious injury, or death, or can damage battery, potentially rendering it inoperable.

- If the battery is stored for long time, it is required to charge them every six months, and the SOC should be no less than 90%.
- Battery needs to be recharged within 12 hours, after fully discharged.
- Do not install the product in outdoor environment, or an environment out of the operation temperature or humidity range listed in manual.
- Do not expose cable outside.
- Do not connect power terminal reversely.
- All the battery terminals must be disconnected for maintenance.
- Any foreign object is prohibited to insert into any part of battery.
- Do not use cleaning solvents to clean battery.
- Do not expose battery to flammable or harsh chemicals or vapors.
- Do not paint any part of battery, include any internal or external components.
- Do not connect battery with PV solar wiring directly.
- Please contact the supplier within 24 hours if there is something abnormal.
- The warranty claims are excluded for direct or indirect damage due to items above.

1.3 Before Connecting

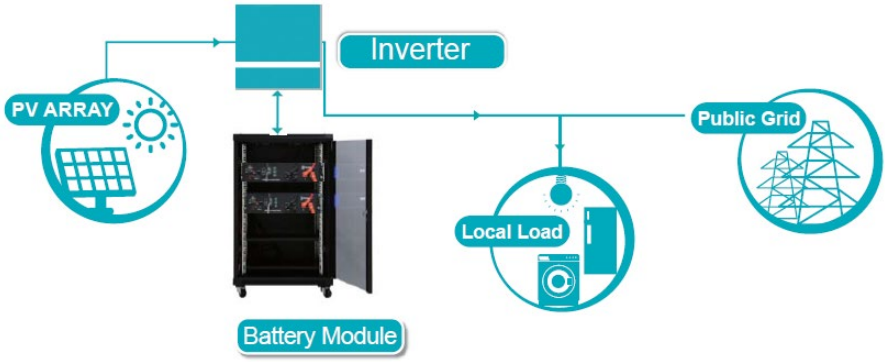
- After unpacking, please check product and packing list first, if product is damaged or lack of parts, please contact with the local retailer.
- Before installation, be sure to cut off the grid power and make sure the battery is in the switched-off mode.
- Wiring must be correct, do not mistake the positive and negative cables, and ensure no short circuit with the external device.
- It is prohibited to connect the battery and AC power directly.
- The embedded BMS is designed for 48V DC, please DO NOT connect battery in series.
- Battery system must be well ground and the resistance must be less than 100mΩ.
- Please ensured the electrical parameters of battery system are compatible to related equipment.
- Keep the battery away from water and fire.

1.4 In using

- If the battery system needs to be moved or repaired, the power must be cut off and the battery is completely shut down.
- It is prohibited to connect the battery with different type of battery.
- It is prohibited to put the batteries working with faulty or incompatible inverter.
- It is prohibited to disassemble the battery (QC tab removed or damaged).
- In case of fire, only dry powder fire extinguisher can be used, liquid fire extinguishers are prohibited.
- Please do not open, repair or disassemble the battery except staffs from Dyness or authorized by Dyness. We do not undertake any consequences or related responsibility which because of violation of safety operation or violating of design, production and equipment safety standards.

1.5 Safe handling of lithium batteries guide

1.5.1 Schematic diagram of solution



1.6 Product identity definition

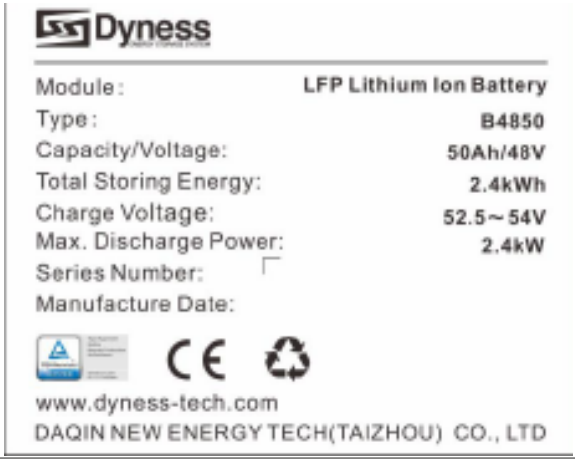


Fig. 1.1 - Battery Energy Storage System nameplate

2.0 INTRODUCTION

2.1 Brief Introduction

B4850 lithium iron phosphate battery system is a standard battery system unit, customers can choose a certain number of B4850 according to their needs, by connecting parallel to form a larger capacity battery pack, to meet the user's long-term power supply needs. The product is especially suitable for energy storage applications with high operating temperatures, limited installation space, long power backup time and long service life.

2.2 Product Properties

B4850 energy storage product's anode materials are lithium iron phosphate, battery cells are managed effectively by BMS with better performance, the system's features as below.

- Comply with European ROHS, Certified SGS, employ non-toxic, non-pollution environment friendly battery.
- Anode materials are lithium iron phosphate (LiFePO4), safer with longer life span.
- Carries battery management system with better performance, possesses protection function like over-discharge, over-charge, over-current, abnormal temperature.
- Self-management on charging and discharging, Single core balancing function.
- Intelligent design configures integrated inspection module.
- Flexible configurations allow parallel of multi-battery for longer standby time.
- Self-ventilation with lower system noise.
- Less battery self-discharge, then recharging period can be up to 10 months during the storage.
- No memory effect so that battery can be charged and discharged shallowly.
- With wide range of temperature for working environment, -20°C ~ +55°C, circulation span and discharging performance are well under high temperature.
- Less volume, lighter weight.

2.3 System parameter

B4850	
Charge / discharge current [A]	25
Max charge / discharge current [A]	50
Nominal voltage [V]	48
Nominal capacity [kWh / Ah]	2.4 / 50
Depth of Discharge [%]	90
Module available capacity [kWh / Ah]	2.16 / 45
Charge voltage [V]	54
Discharge voltage [V]	42
Max charge / discharge current [A]	50
Dimension W x H x D [mm]	480 x 90 x 360
Weight [Kg]	22
Communication	RS485, CAN
Scalability	up to 40 units in parallel
Operation Temperature [°C]	charge 0 ~ 50 discharge -20 ~ 50
Storage Temperature [°C]	-10 ~ 35
Umidity [RH%]	5 ~ 85
Altitude [m]	<4000
Protection Class	IP20
Operation Life [years]	15+
Life cycles	>6.000
Cooling system	Natural
Transfer Certificate	TÜV, CE, UN38.3, UL1973, CEI-021
EMC Standard	EN62619, IEC62040, CEC Accredited

Tab. 2.1 - System parameter

2.4 Interface Definition

This section elaborates the interface functions of the front interface of the device.

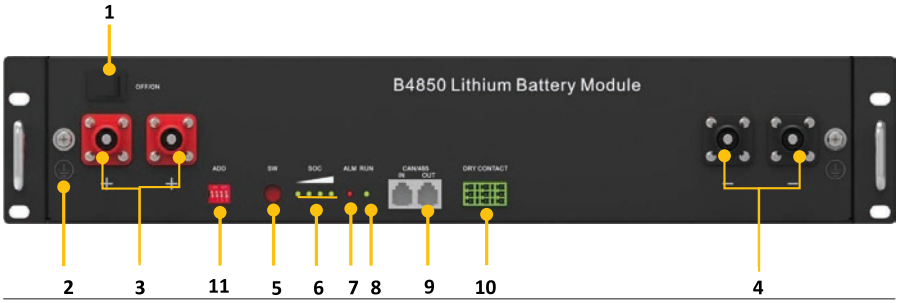


Fig. 2.1 - The sketch of interface

Pos.	NAME	DEFINITION
1	Power switch	OFF/ON, must be in the “ON” state when in use
2	Ground connection point	Shell ground connection
3	Positive socket	Battery output positive or parallel positive line
4	Negative socket	Battery output negative or parallel negative line
5	SW (battery wake/ sleep switch)	When the “OFF/ON” switch button is in the ON state, press and hold this button for 3 seconds to put the battery into the power-on or sleep state.
6	SOC	The number of green lights on shows the remaining battery power. See Table 2-3 for details.
7	ALM	Red light flashing when an alarm occurs, red light always on during protection status. After the condition of trigger protection is released, it can be automatically closed.
8	RUN	Green light flashing during standby and charging mode. Green light always on when discharging.
9	CAN/485	Communication port, support CAN/ RS485 communication (factory default CAN communication)
10	DRY CONTACT	/
11	ADD	DIP switch

Tab. 2.2 - Interface Definition

2.4.1 DIP switch definition and description

When the batteries are connected in parallel, the master communicates with the slaves through the CAN interface. The master summarizes the information of the entire battery system and communicates with the inverter through CAN or 485..

Note: DIP switch from (1) to (3) define different protocols and distinguish between master and slave. DIP switch (4) for Baud rate selection.

- DIP switch (4) OFF: set the RS485 baud rate to 9600 and the CAN to 500k
- DIP switch (4) ON: set the RS485 baud rate to 115200 and the CAN to 250k

The communication cable from the master CAN IN to the inverter comm port should be the correct one.

If the master is the latest B4850 battery with DIP switch.

SETT.	DESCRIPTION
	**Master Set1**. When the battery works with GOODWE, Solis, LUX, Sofar, DEYE, VICTRON, IMEON, Sungrow, SMA, RENAC, DELIOS, SAJ(CAN Comm), before starting the battery,you need put the master DIP switch “#3” to the “ON” position (to the top), then turn on the batteries.
	**Master Set2**. If the battery communicates with the Axpert-king/VMIII/MAX, Infinisolar, Growatt SPH/SPA(CAN comm), GMDE, turn the master DIP switch “#2” to “ON” position.
	**Master Set3**. If the battery communicates with the Growatt SPF HVM-P/ES/WPV by RS485 communication, turn the master DIP switch “#2” and “#3” to “ON”.
	**Master Set4**. If the battery communicates with the Schneider Conext Series, turn the master DIP switch “#1” and “#3” to “ON” (MASTER4)
Slave Set1. When you setup the master DIP as setting 1~4, all the slaves keep the DIP 0000, no need change.	
	**Master Set5**. If the battery module is in communication with the ICC by 485 communication, turn the master DIP switch “#1” and “#4” to “ON”. This is only for ICC (a special communication device of some no-communication inverter), it’s a special firmware in BMS, different from general firmware, so if customers want to use that, please contact dyness to confirm.
	**Slave Set2**. The DIP switch of slaves need to turn the “#4” to “ON” at the same time while the master is setting 5.
If the energy storage system has only one B4850, it is the master itself, and still follow the above steps.	

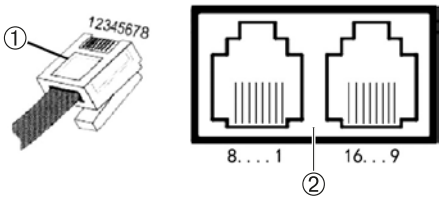


Fig. 2.2 - CAN/485 interface definition: Plug (1), Socket of communication port (2)

FOOT POSITION	COLOR	DEFINITION
PIN1	Orange/white	485A
PIN2	Orange	XGND
PIN3	Green/white	485B
PIN4	Blue	CANH
PIN5	Blue/white	CANL
PIN6	Green	Reserved
PIN7	Brown/white	XIN
PIN8	Brown	Reserved
PIN9	Orange/white	Reserved
PIN10	Orange	XGND
PIN11	Green/white	Reserved
PIN12	Blue	CANH
PIN13	Blue/white	CANL
PIN14	Green	Reserved
PIN15	Brown/white	XOUT
PIN16	Brown	Reserved

Tab. 2.3 - Pin Definition

BATTERY STATUS	SOC	LED1	LED2	LED3	LED4	ALM	RUN
Shutdown	/	OFF	OFF	OFF	OFF	OFF	OFF
STANDBY	75%-100%	●	●	●	●	OFF	Flashing
	50%-75%	●	●	●	OFF	OFF	Flashing
	25%-50%	●	●	OFF	OFF	OFF	Flashing
	5%-25%	●	OFF	OFF	OFF	OFF	Flashing
	0%-5%	●	OFF	OFF	OFF	Flashing	Flashing
	0%	OFF	OFF	OFF	OFF	●	Flashing
Charging	100%	●	●	●	●	OFF	Flashing
	75%-100%	●	●	●	Flashing	OFF	Flashing
	50%-75%	●	●	Flashing	OFF	OFF	Flashing
	25%-50%	●	Flashing	OFF	OFF	OFF	Flashing
	0%-25%	Flashing	OFF	OFF	OFF	OFF	Flashing
Discharging	75%-100%	●	●	●	●	OFF	●
	50%-75%	●	●	●	OFF	OFF	●
	25%-50%	●	●	OFF	OFF	OFF	●
	5%-25%	●	OFF	OFF	OFF	OFF	●
	0%-5%	●	OFF	OFF	OFF	Flashing	●
	0%	OFF	OFF	OFF	OFF	●	Flashing

Tab. 2.4 - LED status indicators

Note: A special ALM light flashing state: when the communication between batteries is lost or abnormal,all the lights from SOC to RUN of the master battery will flash together.

● = means green light always on
● = means red light always on
Flashing : means green or red light flashing

2.5 Battery Management System (BMS)

2.5.1 Voltage Protection

Low Voltage Protection in Discharging: When any battery cell voltage or total voltage is lower than the protection value during discharging, the over-discharging mode is activated, and the battery buzzer makes an alarm sound. Then battery system stops supplying power to the outside. When the voltage of each cell back to rated return range, the protection is over.

Over Voltage Protection in Charging: Battery will stops charging when total voltage or any battery cell voltage reaches the rated protection value during charging stage. When total voltage or all cell back to rated range, the protection is over.

2.5.2 Current Protection

Over Current Protection in Charging: When the charge current >45A, current limit protection mode is activated, current will be limited to 4A, protection is removed after rated time delaying 10S. Circulate like this until the current is lower than 45A.

Over Current Protection in Discharging: When the discharging current is greater than the protection value 55A, the battery buzzer alarms and the system stops discharging. Protection is removed after rated time delaying 1min.

Caution: The buzzer sound alarm setting can be manually turned off on the background software, and the factory default is on.

2.5.3 Temperature Protection

Low/Over temperature protection in charging: When battery's temperature is beyond range of -5°C ~ +55°C during charging, temperature protection is activated, device stops charging.
The protection is over when temperature back to rated working range.

Low/Over temperature protection in discharging: When battery's temperature is beyond range of -20°C ~ +55°C during discharging, temperature protection is activated, device stops supplying power to the outside.
The protection is over when temperature back to rated working range.

2.5.4 Other Protection

Short Circuit Protection: When the battery is activated from the shutdown state, if a short circuit occurs, the system starts short-circuit protection for 60 seconds.

Self-Shutdown: When device connects no external loads and power supply and no external communication for over 72 hours, device will dormant standby automatically.

Caution: Battery's maximum discharging current should be more than load's maximum working current.

3.0 INSTALLATION

3.1 Tools

			
Wire Cutter	Crimping Modular Plier	Cable Ties	Screw Driver
			
Electric Screw Driver	Adjustable Wrench	Isolating nut drivers	Multimeter

Tab. 3.1 - Tools needed to install battery pack

Danger. Use properly insulated tools to prevent accidental electric shock or short circuits.
If insulated tools are not available, cover the entire exposed metal surfaces of the available tools, except their tips, with electrical tape.

3.2 Safety Gear

It is recommended to wear the following safety gear when dealing with the battery pack.

		
Insulating gloves	Safety goggles	Safety shoes

3.3 System Working Environments Checking

3.3.1 Cleaning

Warning! The clean condition will cause the isolation characteristic of the system. Before installation and system working, the dust and iron scurf must be clean to ensure the environments cleaning. And the environment must have certain anti-dust ability.

The system after long term running must check if the humidity and dust cover or not. If heavy dust cover with high humidity on the system, stop the system running and make clean especially the ventilation channels.

3.3.2 Temperature

Caution. B4850 system working temperature range -20° - 55°C; Optimum temperature: 15°C - 30°C.
There are no mandatory ventilation requirements for the battery module, but please avoid installation in confined areas. Avoid high salinity, humidity or high temperature conditions.

Caution. The installation areas shall avoid of direct sunlight.
Out of the working temperature range may cause the battery reduces the cycle of life even trigger the battery system over / low temperature alarm or protection.
The room should be equipped with cooling/heating system. If the environment is lower than 0°C, the heating system at first must be turned on.

3.3.3 Fire-extinguisher System

Warning. The room must be equipped with fire-extinguisher system for lithium-ion battery. The fire system needs to be regularly checked to be in normal condition. Refer to the using and maintenance requirements of local fire equipment relevant.

3.3.4 Grounding System

Warning. Before the battery installation be sure the grounding point of the basement is stable and reliable. If the battery system is installed in an independent equipment cabin (e.g. container), make sure the grounding of the cabin is stable and reliable. The resistance of the grounding system must be ≤100 mΩ**.**

3.3.5 Safety area

Keep free area around the system to allow access to each battery and routine maintenance.
The distance from air outlet of inverter is more than 0.5 meters.

3.4 Handling and placement

Caution. BESS must be operated by qualified and authorized personnel only. It must be installed in a restricted access area.

Warning. Single battery module is 22 kg. If without handling tools must have 2 man to handling with it.

- The base's weight capacity should support the weight of whole battery system.
- B4850 system bust be installed on fixed ground.

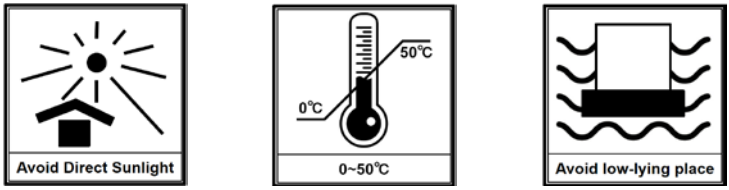


Fig. 3.1 - Avoid direct sunlight and low-lying place

3.5 Unpacking inspection

- When the equipment arrives at the installation site, loading and unloading should be carried out according to the rules and regulations, to prevent from being exposed to sun and rain.
- Before unpacking, the total number of packages shall be indicated according to the shipping list attached to each package, and the case shall be checked for good condition.
- In the process of unpacking, handle with care and protect the surface coating of the object.
- Open the package, the installation personnel should read the technical documents, verify the list, according to the configuration table and packing list, ensure objects are complete and intact, if the internal packing is damaged, should be examined and recorded in detail.

	ITEM	Q.TY	SPECIFICATION
	Battery-B4850	1	48V / 50Ah 480 × 360 × 90 mm
	Power cable positive	OPT	Red 25 mm² / L 2050 mm
	Power cable negative	OPT	Black 25 mm² / L 2050 mm
	Parallel cable positive	1	Red 25 mm² / L 215 mm
	Parallel cable negative	1	Black 25 mm² / L 215 mm
	Communication parallel cable	1	Black L250 mm / Double RJ45 plug
	Communication cable to inverter	1	Black L2000 mm / Double RJ45 plug
	Ground wire	1	L500 mm, 4mm²
	Screws	4	Combination screws M6*14
	B4850 User manual	1	User manual

Tab. 3.2 - Packing list

3.6 Engineering coordination

Electrical interface check

Devices that can be connected directly to the battery can be user equipment, power supplies, or other power supplies.

- Confirm whether the user's PV power generation equipment, power supply or other power supply equipment has a DC output interface, and measure whether the DC power output voltage meets the voltage range requirements in "Tab. 2.1 - System parameter" at page 13.
- Confirm that the maximum discharge current capability of the DC power interface of the user's photovoltaic power generation equipment, power supply or other power supply equipment should be greater than the maximum charging current of the products used in "Tab. 2.1 - System parameter" at page 13. If the maximum discharge capacity of the DC power interface of the user's photovoltaic power generation equipment is less than the maximum charging current of the products used in "Tab. 2.1 - System parameter" at page 13, the DC power interface of the user's photovoltaic power generation equipment shall have a current limiting function to ensure the normal operation of the user's equipment.
- Verify that the maximum operating current of the battery-powered user equipment (inverter DC input) should be less than the maximum discharge current of the products used in "Tab. 2.1 - System parameter" at page 13.

Attention should be paid to the following items before construction:

- Power line specification.
  The power line specification shall meet the requirements of maximum discharge current for each product.
- Mounting space and bearing capacity.
  Make sure that the battery has enough room to install, and that the battery rack and bracket have enough load capacity.
- Wiring.
  Make sure the power line and ground wire are reasonable. Not easy to short-circuit, water and corrosion.

3.7 Equipment installation

3.7.1 Installation preparation

- Prepare equipment and tools for installation
- Check the B4850 unit and confirm that the ON/OFF switch is in the "OFF" state to ensure the device is shut off (no live operation).

3.7.2 Cabinet mechanical installation

- Battery placement position determination.
- Place the B4850 unit on the cabinet bracket as shown in the figure and push the device into the cabin at the installation position. (The cabinet structure in the figure is for reference only).
  Secure the B4850 unit to the cabinet with a nut through the mounting holes top on the hanging ears of the B4850 unit.

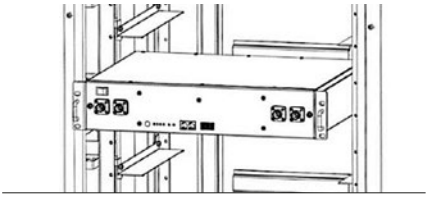


Fig. 3.2 - Insertion

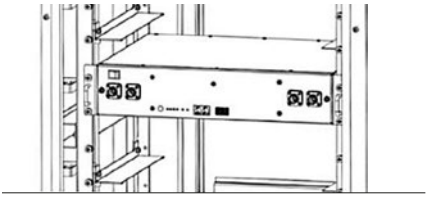


Fig. 3.3 - Installation

3.7.3 Electrical installation

Before connecting the power cables, use multimeter to measure cable continuity, short circuit, confirm positive and negative, and accurately mark the cable labels.

Measuring methods:

- Power cable check: select the buzzer mode of multimeter and detect the both ends of the same color cable. If the buzzer calls, it means the cable is in good condition.
- Short circuit judgment: choose multimeter resistor file, probe the same end of positive and negative pole, if the resistor shows infinity, means that the cable is available.
- After visual testing of power line is connection, the positive and negative poles of the battery shall be connected respectively to the positive and negative poles of the opposite terminal.
- It is better to add a circuit breaker between the inverter and the battery system. The selection of the circuit breaker requires:
  Voltage: U>60V
  Current: I = Inverter power / 45V

Cable connection:

1. Ground cable installation
2. Battery module parallel cable installation
3. Parallel communication cable connection

Note: The BAT-INV comms cable is from inverter comm port to master CAN IN port, BAT-BAT cable is from master CAN OUT to slave1 CAN IN,slave1 CAN OUT to slave2 CAN IN.

Battery system self-test

1. Turn the ON/OFF switch to the “ON” state
2. Press SW button 3S to wake up battery
3. Check the system output voltage and led status
4. Shut down the system

Connecting inverter

1. Connect total positive & total negative cable of the battery system to the inverter
2. Battery module total positive cable installation
3. Battery module total negative cable installation
4. Connect the communication cable from the master CAN IN to the inverter
5. Turn on the Power switch and wake up system by SW button
6. Close the DC breaker between inverter and battery
7. Turn on the inverter and check the communication between inverter and battery system

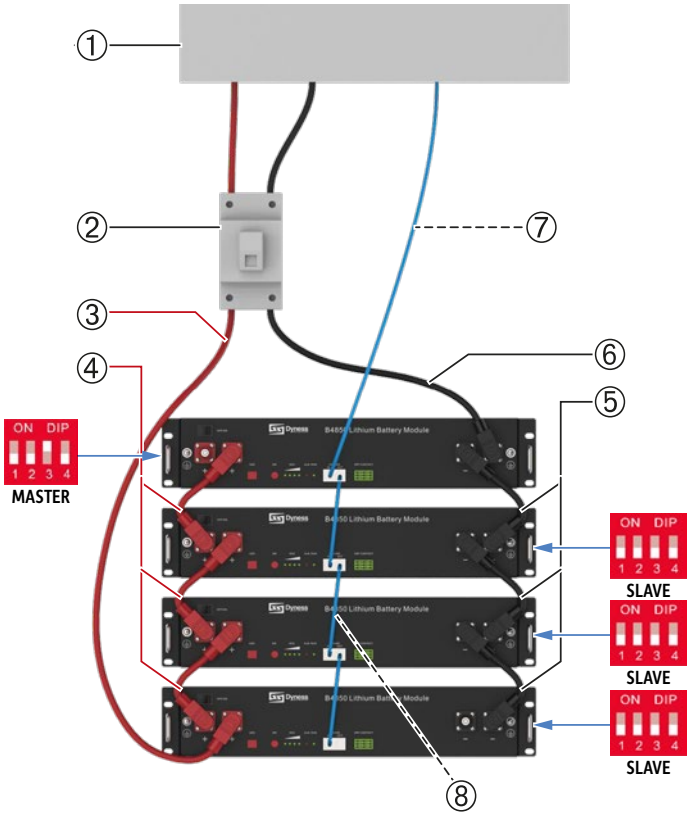


Fig. 3.4 - The circuit breaker (2) is installed between the battery module and the inverter

1) Inverter, 2) Circuit breaker, 3) Positive power cable, 4) Positive parallel cable, 5) Negative parallel cable, 6) Negative power cable, 7) Communication cable-to inverter, 8) Communication parallel cable.

Note: After the whole system connection,set the master DIP mode according to the inverter model firstly,then start the battery.

Note: For more information of matching inverter brands, please subject to the latest document.

Each pair of power cable, it's limited continuous current is 120A, so if the inverter Max.work current more than 120A, please add power cable according to the proportion.

3.7.4 Battery parameter settings on the inverter

- Max Charging(Bulk) Voltage: 53.5V
- Absorption Voltage: 53V
- Float Voltage: 52.5V
- Shut Down (cut off) Voltage: 47V
- Shut Down (cut off) SOC: 20%
- Restart Voltage: 49V
- Max Charge Current: 25A * battery QTY
- Max Discharge Current: 25A * battery QTY
- Capacity: 1*B4850=50Ah

3.7.5 Register on the website after installation

After the battery system installation is completed and the running is normal, you need to log in to the DYNESS official website to register the product installation and use information to make the product warranty effective.

Please follow the instructions on the website to register.
dyness-tech.com -> **Service** -> **Sign**.

4.0 USE, MAINTENANCE AND TROUBLESHOOTING

4.1 Battery system usage and operation instructions

- After completing the electrical installation, follow these steps to start the battery system.
- Refer to the description of the DIP switch of 2.3.1 to prepare the battery module before starting up, then press the ON/OFF button to the ON position, next press and hold the SW button for 3 seconds.
- After the indicator self-test, the RUN indicator will light and the SOC indicator will be on (100% SOC status in the Figure 4-1).

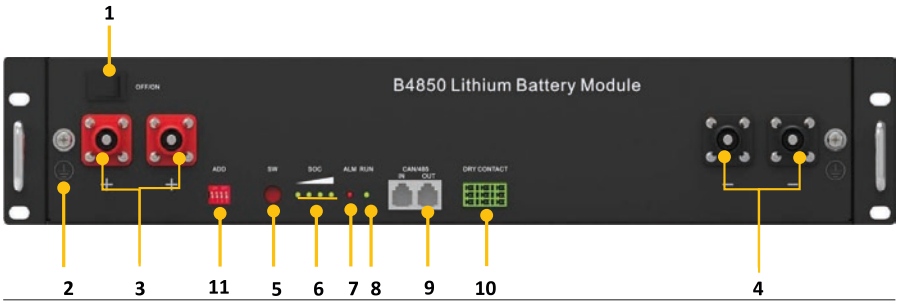


Fig. 4.1 - B4850

Caution: After pressing the power button, if the battery status indicator on the front panel continues to be red, please refer to the “4.2 Alarm description and processing”. If the failure cannot be eliminated, please contact the dealer timely.

- Use a voltmeter to measure whether the voltage of the circuit breaker battery access terminal is higher than 42V, and check whether the voltage polarity is consistent with the inverter input polarity. If the circuit breaker battery input terminal has a voltage output and is greater than 42V, then the battery begin to work normally.
- After confirming that the battery output voltage and polarity are correct, turn on the inverter, close the circuit breaker.
- Check if the indicator of the inverter and battery connection (communication indicator and battery access status indicator) is normal. If it is normal, successfully complete the connection between the battery and the inverter. If the indicator light is abnormal, please refer to the inverter manual for the cause or contact the dealer.
- Battery modules can be connected in parallel up to 40 units.

HYBRID INVERTER	OFF-GRID INVERTER	B4850		POWERBOX	
EPS (backup port)		Min. parallel number	System Energy (kWh)	Type	System Energy kWh
AC output Power					
≤1.2kW		1	2.4	F-2.5	2.4
≤2.4 kW		2	4.8	F-5.0	4.8
≤3.6 kW		3	7.2	F-7.5	7.2
≤4.8 kW		4	9.6	F-10.0	9.6
≤6.0 kW		5	12.0	2* F-7.5	14.4
≤7.2 kW		6	14.4	2 * F-7.5	14.4
≤8.4 kW		7	16.8	2* F-10.0	19.2
≤9.6 kW		8	19.2	2* F-10.0	19.2
≤14.4 kW		12	28.8	3* F-10.0	28.8

Tab. 4.1 - Battery & Inverter power matching table

Charging The battery's long-term continuous charging current should be ≤0.5C If the battery capacity is empty, please charge it within 18 hours after the battery is empty.

Discharging The long-term continuous discharge current of the battery should be ≤0.5C. The recommend maximum depth of discharge (DOD) of Battery PACK is no more than 80%.

4.2 Alarm description and processing

When protection mode is activated or system failure occurred, the alarm signal will be given through the working status indicator on the front panel of the B4850. The network management can query the specific alarm categories.

If the fault such as single cell overvoltage, charging over-current, under-voltage protection, high-temp protection and other abnormalities which affects the output, please deal with it according to Table 4-2.

STATUE	ALARM CATEGORY	ALARM INDICATION	PROCESSING
Charge state	Over-current	RED, Buzzer start	Stop charging and find out the cause of the trouble
	High temp	RED	Stop charging
Discharge state	Over-current	RED, Buzzer start	Stop discharging and find out the cause of the trouble
	High temp	RED	Stop discharging and find out the cause of the trouble
	Total voltage undervoltage	RED, Buzzer start	Start charging
	Cell voltage undervoltage	RED, Buzzer start	Start charging

Tab. 4.2 - Main alarm and Protection

4.3 Analysis and treatment of common faults

FAULT PHENOMENON	REASON ANALYSIS	SOLUTION
The indicator does not respond after the power on	Total voltage lower than 35V	Check the total voltage
No DC output	Battery data status is abnormal. Battery gets into over-discharged protection	Read the battery information on the monitor
The DC power supply time is too short	Battery capacity become smaller	Storage battery replacement or add more modules
The battery can't be fully charged to 100%	Charging voltage is too low	Adjust charging voltage at 53.5V or 54V
The power cable sparks once power on and ALM light RED	Power connection short-circuit	Turn off the battery, check the cause of the short circuit
Communication fault	The DIP setting of he master is wrong	Check these possible cause one by one
	the battery type of the inverter is wrong	
	Communication cable used incorrectly	
	Communication cable is incorrectly connected at the battery comm port or the inverter comm port	
	The battery firmware version is not support the inverter	

If you need any technical help or have any question, please contact the seller in time.

Imported by:
Energy S.p.A.
Piazza Manifattura 1
38068 Rovereto (TN) - Italy
Tel: +39 049 2701296
email: service@energysynt.com
web: www.energyspa.com

DAQIN NEW ENERGY TECH (TAIZHOU) Co.,LTD
Address: Building 13, Jiangyan Industrial Park
Sanshui Street, Jiangyan District, Taizhou City,
Jiangsu Province,225500
email: sales@dyness-tech.com
web: www.dyness-tech.com