

Model NO.: DHA150

Sepecification

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Preface

Overview

This specification aims to provide a detailed description of the technical specifications, performance requirements, and functional characteristics of the relevant products to meet the application needs in different scenarios. Provide a unified reference standard for suppliers, engineers, and customers, and ensure that products can meet expected requirements and operate safely and reliably.

The compilation of this specification book refers to industry standards, national regulations, and relevant technical requirements, and comprehensively regulates the core technology, component selection, system performance, safety performance, control and monitoring of the product. At the same time, this specification also provides requirements for delivery acceptance, maintenance, and aftersales service to ensure the quality and reliability of the product.

During the preparation process of this specification, we listened to the opinions and suggestions of suppliers, engineers, and customers, striving to make the content of the specification reasonable, feasible, and as consistent as possible with existing industry standards and specifications. However, due to the continuous development of technology and market, this specification may need to be updated and modified according to actual application situations.

DHA150 SPECIFICATION

Proposed/Date	Review/Date	Approval/Date
Xiaohui Ying		

Revision record:

Date	Revision	Revise Details	Revised by
2024/8/19	A0	First release	Xiaohui Ying

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1. Product Overview

1.1 Product Name:

DHA150 energy storage battery

1.2 Product Description:

This product features high-performance lithium iron phosphate (LiFePO₄) prismatic cells produced by globally leading manufacturers. These cells are renowned for their outstanding performance, excellent consistency, and ultra-long cycle life, fully meeting diverse user needs. The product's casing is made from thickened steel plates treated with electrostatic spray coating, providing exceptional structural strength and durability. An intelligent battery management system is built in to further ensure the stability and safety of the power supply. We use a quick plug-and-play design for the input and output ports, making operation convenient and offering strong overcurrent capability. Additionally, the product is equipped with a variety of communication interfaces, making it widely compatible with mainstream inverter brands on the market, providing users with greater flexibility and compatibility. With its excellent performance, stable quality, and high compatibility, this product perfectly meets the diverse and complex needs of modern home energy storage, delivering a more reliable and efficient energy solution for users.

2. Product specifications

NO	Item	Specifications	Remark
1	Nominal voltage	51.2V	
2	Nominal Capacity	280Ah	
3	Energy	14336Wh	
4	Working voltage	40~58.4V	
5	Charge Voltage	58.4V	Maximum
6	Standrad charge current	50A	
7	Max charge current	100A	Based on the working current of the BMS
8	Discharge Cut-off Voltage	40V	
9	Standard discharge current	50A	
10	Max discharge current	100A	Based on the working current of the BMS
11	Cell Model	LFP 711732043.2V 280Ah	
12	Housing material	Cold rolled steel plate	
13	Dimensions	1190*390*238±2mm	
14	Weight	≈ 120.5kg	
15	Working temperature range	Charge: 0C~45℃ Discharge: -20℃-60℃	At10%-90%RH

Note: For the above testing items, the testing conditions should comply with all the contents of the third main item "Testing Conditions". If any of the working conditions of the battery exceed the range of the third main item, there will be a certain deviation in the performance of the battery.

3. Testing conditions and methods

3.1 Testing Standards

3.1.1 The test should use a new battery pack delivered within 15 days and not undergo more than 5 charge and discharge cycles.

3.1.2 The test should be conducted in an environment with a temperature of 25 °C ± 2 °C, a relative humidity of 15% -90% RH, and an atmospheric pressure of 86kPa to 106kPa. The room temperature mentioned in this specification refers to 25 °C ± 2 °C.

3.2 Testing Method Standards

NO	Item	Test method
3.2.1	Standard charging	Constant current charging: initially charged with a constant current of 0.2C until the set voltage is reached. Constant voltage charging: After reaching the charging voltage, switch to constant voltage charging mode. Reduce current: In constant voltage mode, the current gradually decreases to 0.01C.
3.2.2	Standard Discharge	Constant current discharge: Discharge at a constant current of 0.2C until the discharge cut-off voltage is reached.
3.2.3	Charge-discharge cycle	Charging stage: Charge to full charge according to the requirements of 3.2.1 and let it stand for 0.5-1 hour. Discharge stage: Discharge according to the requirements of 3.2.2 until the end, and let it stand for 0.5-1 hour again. Repeat cycle: After completing one charge and discharge cycle, perform another charge and discharge cycle, and maintain a static time of 0.5-1 hour between each cycle

Note: The above testing methods must meet the standards required in sections 3.1 and 3.2. The charging and discharging current, voltage, and other parameters involved in the testing method shall be subject to the second product specification parameter.

4. Interface performance

NO	Item	Performance Description	
4.1	Parallel use	Supports up to 15 battery packs for external parallel operation, mainly used for battery expansion and power increase.	
4.2	Communication	External communication interface RS485: mainly used for communication with inverters and reading battery information using PCs; Internal communication interface RS485: Used for communication of battery parallel operation and reading battery information using PC.	
4.3	Adapted inverter	RS485 Interface CAN Interface	SMA, Victron, PYLONTECH, DEYE, Growatt, Sacolar, MEGARE VO, SOFAR, Goodwe, MUST, TBB Donergy, PYLONTECH, DEYE, Growatt, Sacolar, Voltronic, SRNE, SAJ

※ Parallel use:

- When the battery is used in parallel, a junction box needs to be installed, and the positive and negative poles of each group of batteries should be connected to the junction box.
- External parallel connection is the mutual communication and coordination between BMS to meet the unified monitoring of batteries by the upper computer. The battery itself does not have functions such as load balancing and synchronous control. To achieve the above functions, additional equipment needs to be purchased.

5. Electrical parameters

Function	Status	Item	Typical values	Range value	Remark
Overall voltage report	Open	Overcharge alarm voltage	57.6V	±40mV	Can be set
		Overdischarge alarm voltage	44.8V	±40mV	Can be set
Overall overcharge protection	Open	Overcharge protection voltage	58.4V	±40mV	Can be set
		Overcharge protection delay	1s	200-1800ms	Can be set
		Overcharge recovery voltage	53.6V	±300mV	Can be set
Overall over discharge protection	Open	Overdischarge protection voltage	40V	±300mV	Can be set
		Overdischarge protection delay	1s	500-3000ms	Can be set
		Overdischarge recovery voltage	47.2V	±600mV	Can be set
Charging overcurrent alarm	Open	Charging alarm current	105A	±2A	Can be set
Charging overcurrent protection	Open	Charging protection current	110A	±2A	Can be set
		Charging overcurrent delay	1.2S	±0.6s	Can be set
Discharge overcurrent alarm	Open	Discharge alarm current	105A	±2A	Can be set
Discharge overcurrent protection	Open	Discharge protection current	110A	±10A	Can be set
		Discharge overcurrent delay	10s	±2s	Can be set
Secondary overcurrent protection	Open	Secondary protection current	≥250A	±3A	Can be set
		Secondary overcurrent delay	500ms	100-1500ms	Can be set
Charging current limit		Charging current limit value	10A		30minTry once
Discharge overcurrent recovery		Auto-recovery delay		Auto-recovery after 32 seconds	3 times will be locked

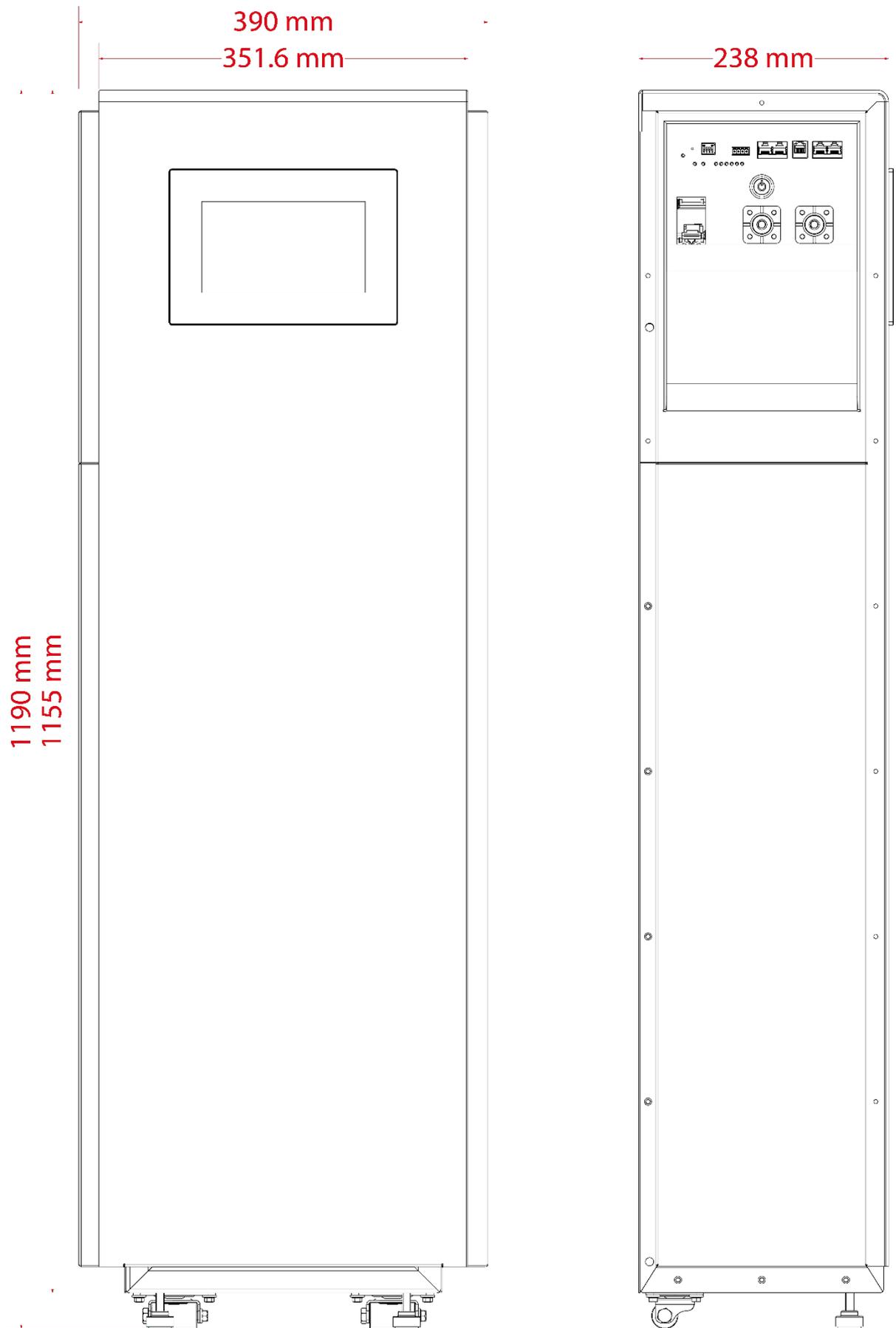
6. Product drawings

Picture 1

6.1 Product Appearance



Product size



Container loading reference (20GP)

Packing method: Single wooden box with forklift legs

Cargo volume: 25m³

Weight of goods: 13650.00kg

Length tolerance: 40.02mm

Number of cards installed:
Card board

Width tolerance: 180.52mm

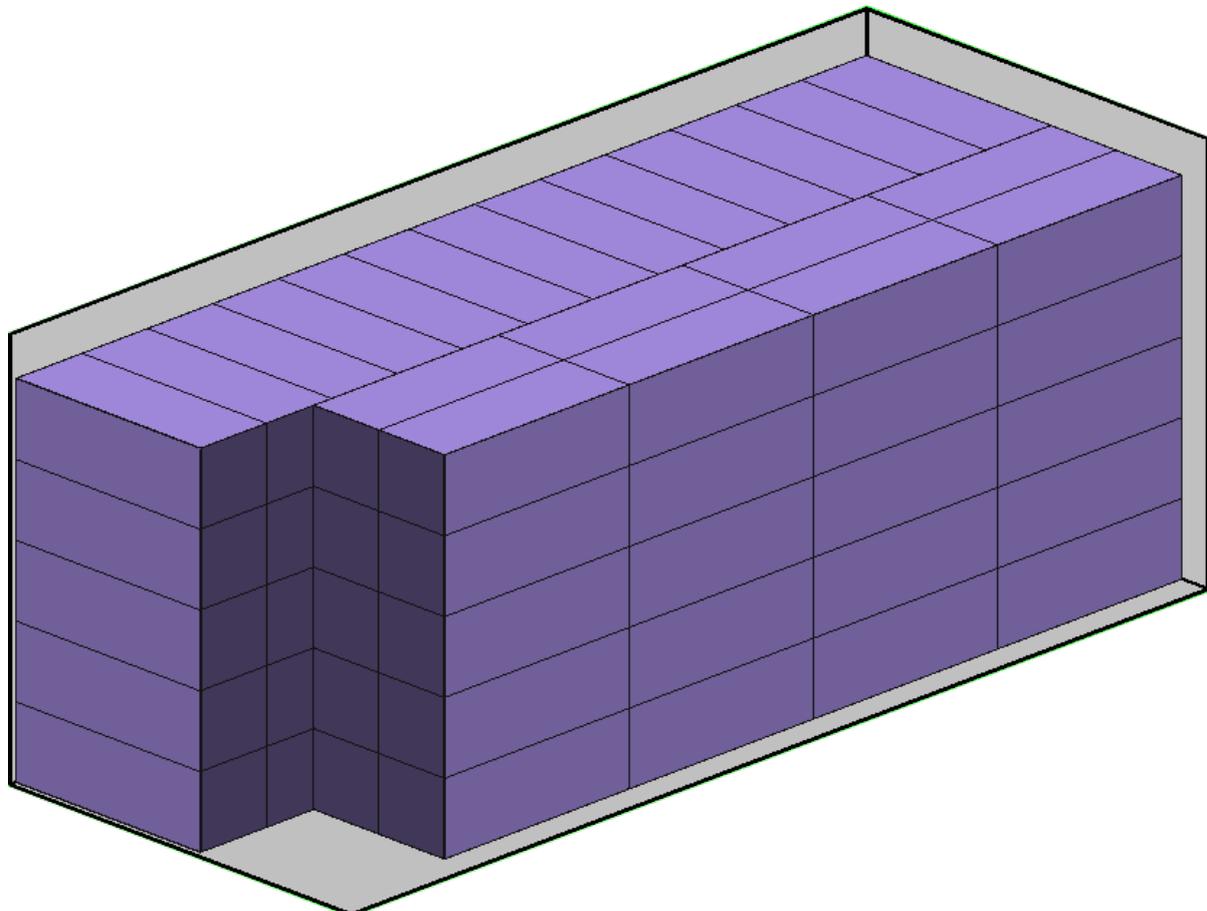
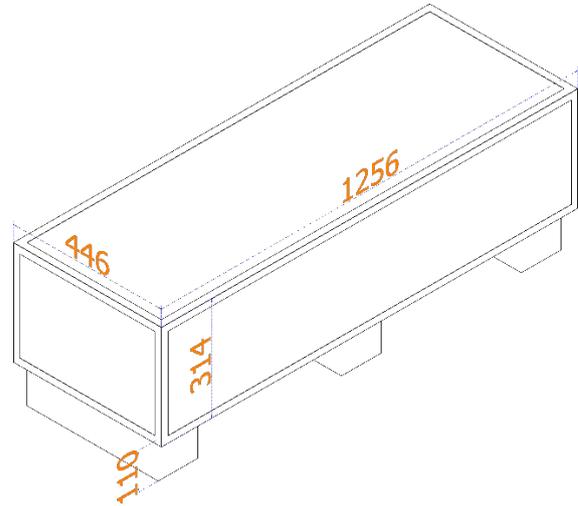
Number of small pieces per
pallet: units

Volume utilization rate: 75.39%

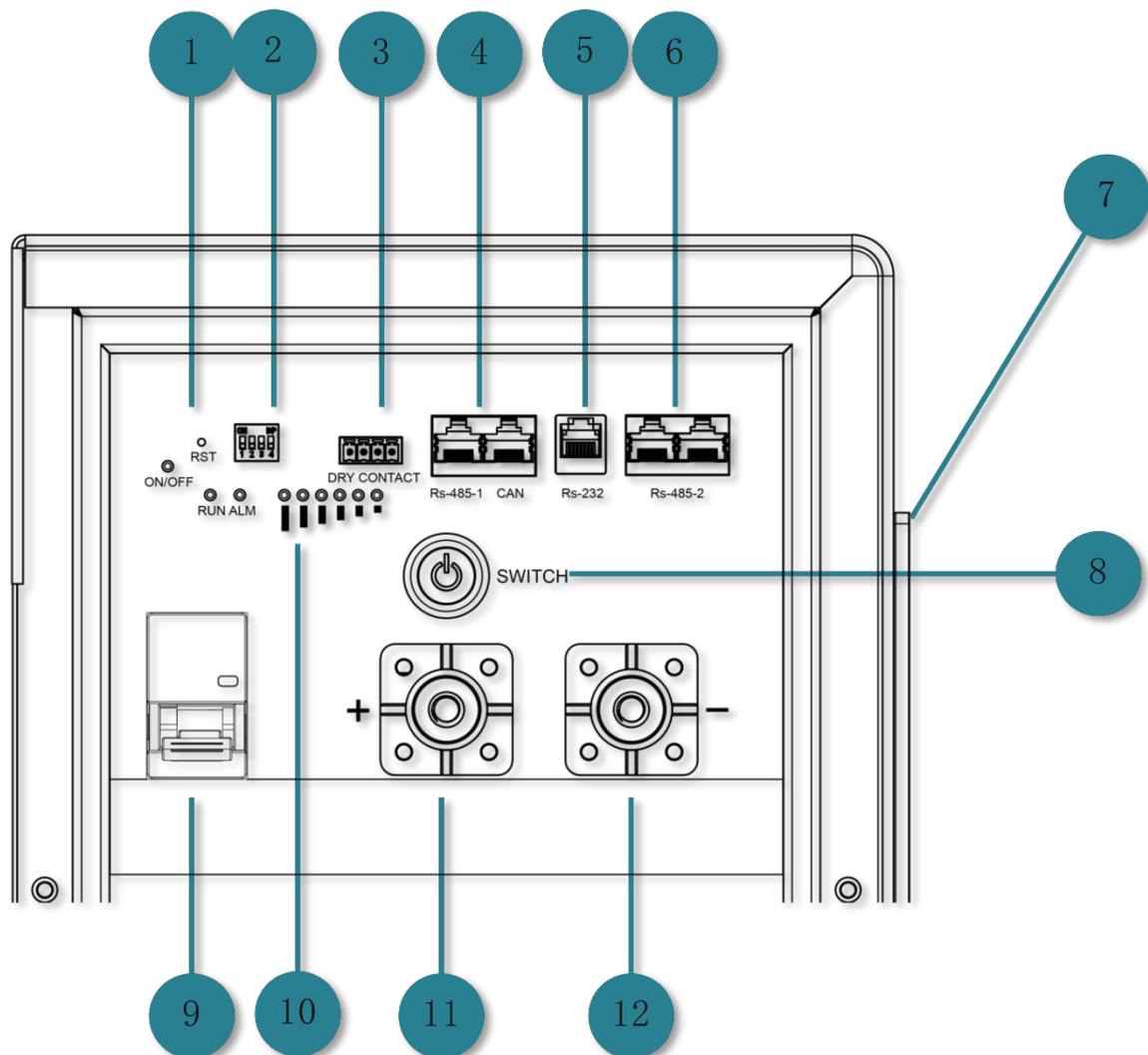
Full container gross weight: 15930.00kg

Height tolerance: 246.75mm

Number of fully loaded containers: 105 units



6.2 Interface Definition



12	P-	Negative connector, input/output negative interface.
11	P+	Positive connector, input/output positive interface.
10	LED indicator light	Operation status and SOC indicator light.
9	Circuit breaker	Positive input/output power switch.
8	Weak current switch	BMS switch.
7	LCD touch screen	LCD multi touch capacitive screen.
6	Communication Port	RS485-2-RJ45 interface.
5	Communication Port	RS232-RJ11 interface.
4	Communication Port	RS485-1, CAN-RJ45 communication interface.
3	Dry contact interface	KF2EDG 3.81mmPlug in terminal block.
2	Dial switch	When performing multi machine parallel communication operations, it is necessary to first configure the dialing address.
1	Reset switch	Reset button switch (hidden), long press for 3 seconds to take effect.
Remark		

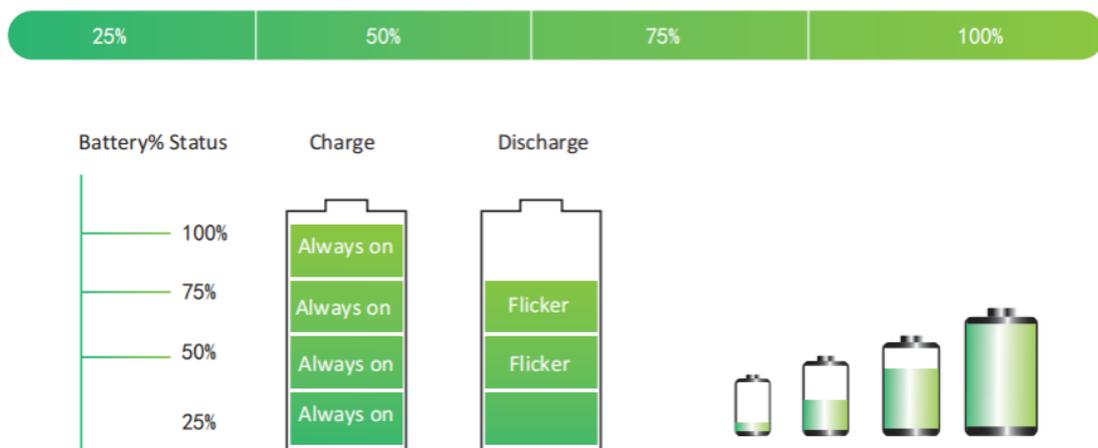
6.3 Indicator light display status

6.3.1 Self checking mode

When the "power on" button is pressed, the battery BMS starts working, and the indicator light status is as follows:

- The bottom LED starts to light up the red light, and then lights up the red light from bottom to top until all LEDs light up the red light at the same time, and then synchronously turn off;
- The bottom LED starts to light up the yellow light, and then lights up the yellow light from bottom to top until all LEDs light up the yellow light at the same time, and then synchronously turn off;
- The bottom LED starts to light up the green light, and then lights up the green light from bottom to top until all LEDs light up the green light at the same time. After the self-test is completed, it enters the working state.

6.3.2 Battery indicator light

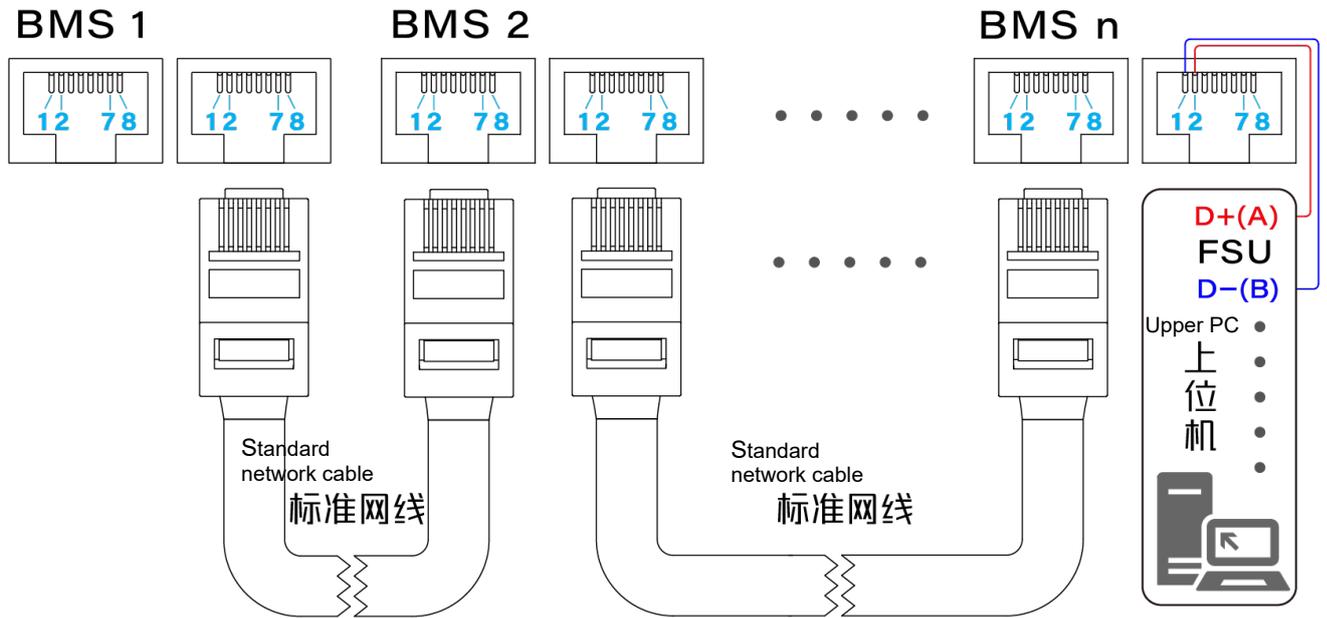


6.4 Dial switch

When parallel use is required, the unique address of the power supply can be set through a dip switch to distinguish between different power sources. The detailed definition of power address is as follows:

	No.	Switch address	No.	Switch address
<p>Using BCD code format, the definition of address 0 is as follows:</p>  <p>The host address code must be 0, and addresses are assigned from 1 to 15 for the slave.</p>	0	 0000	8	 0001
	1	 1000	9	 1001
	2	 0100	10	 0101
	3	 1100	11	 1101
	4	 0010	12	 0011
	5	 1010	13	 1011
	6	 0110	14	 0111
	7	 1110	15	 1111

6.5 Communication Interface



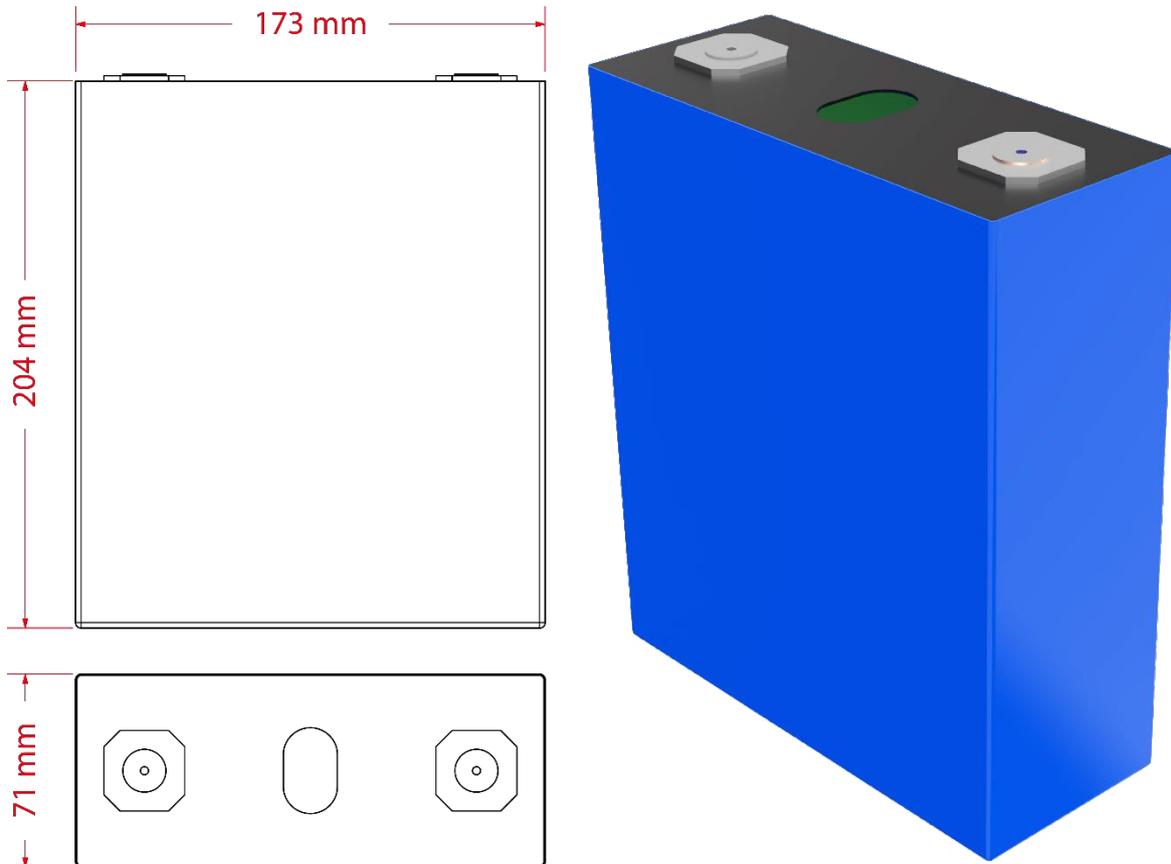
RS232- using 6P6C vertical RJ11 socket	
RJ11Pin	Definition Description
2	NC
3	TX (single board)
4	RX (single board)

RS485- using 8P8C vertical RJ45 socket		CAN - adopts 8P8C vertical RJ45 socket	
RJ45 Pin	Definition Description	RJ45 Pin	Definition Description
1.8	RS485-B1	9、10、11、14、16	NC
2.7	RS485-A1	12	CANL
3.6	GND	13	CANH
4.5	NC	15	GND

CAN and RS485 interfaces

RS485- using 8P8C vertical RJ45 socket		RS485- using 8P8C vertical RJ45 socket	
RJ45 Pin	Definition Description	RJ45 Pin	Definition Description
1.8	RS485-B	9、16	RS485-B
2.7	RS485-A	10、15	RS485-A
3.6	GND	11、14	GND
4.5	NC	12、13	NC

7. Basic parameters of battery



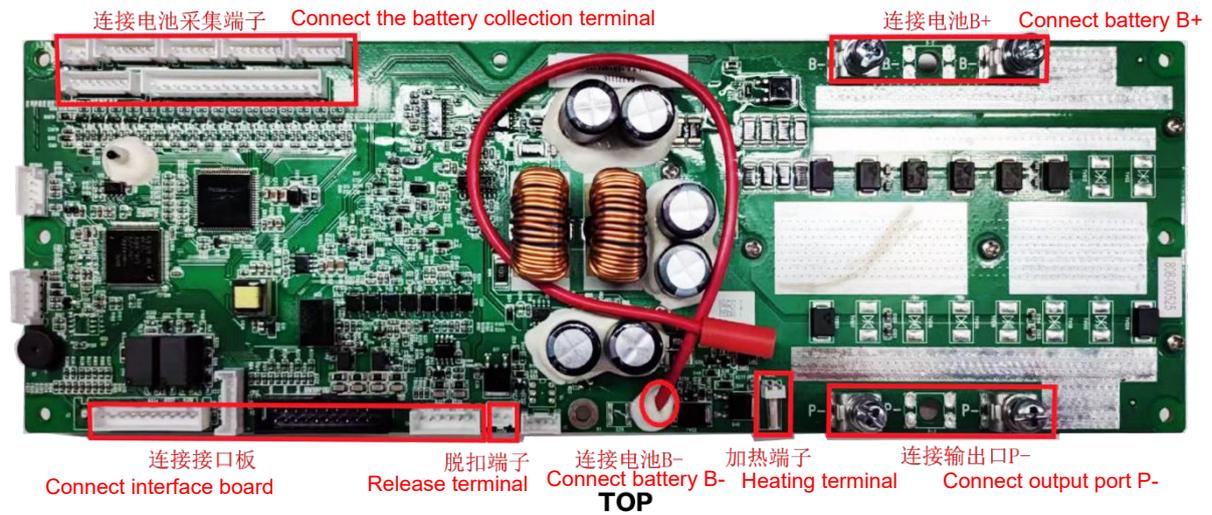
Model	LFP71173204
Nominal Capacity	280Ah
Nominal Voltage	3.2V
Max charging voltage	3.65±0.05V
Discharge cut-off voltage	2.5±0.05V
Standard charging and discharging current	0.2C (56A)
Maximum continuous charging and discharging current	1C (280A)
Battery weight	2±0.1kg
Cycle life	≥ 6000 cycles Capacity retention rate ≥ 80% (Working temperature 25 °C, 0.2C charging and discharging)

8. Basic parameters of battery module



Cell Model	LFP71173204
Cell type	Lithium Iron Phosphate (LiFePO ₄)
Weight	24kg±0.5kg
Available capacity	14336Wh
Series parallel connection method	4S1P×4
Connection method	Aluminum laser connection

9、Basic parameters



Operating Voltage	36-60V
Normal charging voltage	42-60V
Continuous charging current	100A
Continuous discharge current	100A
Overall overcharge protection	58.4V (Can be set)
Overall over discharge protection	40V (Can be set)
Overall overcharge recovery	53.6V (Can be set)
Overall over discharge recovery	47.2V (Can be set)
Product size	mainboard: 300*100*40mm
	interface board: 160*45*20mm

10. Instructions for use

10.1 Charging Requirements

Charging requirements are regulations that ensure safe and effective charging. Please be sure to comply with the following charging requirements:

1. The charging current shall not exceed the maximum charging current specified in the specifications.
2. The charging voltage shall not exceed the voltage range specified in the specifications.
3. The design of the charger must meet the condition that the charging voltage does not exceed the maximum charging voltage of the battery.

During the charging process, the battery must be charged within the ambient temperature range specified in the specifications.

5. Reverse charging is strictly prohibited. Please make sure to connect the positive and negative terminals of the battery correctly to avoid reverse charging.

Adhering to these charging requirements can ensure the safety of the charging process while protecting the lifespan of the equipment and battery.

10.2 Discharge requirements

Discharge requirements are also regulations that ensure safe and effective use of batteries. Please comply with the following discharge requirements:

1. The discharge current shall not exceed the maximum discharge current specified in the specifications. During the discharge process, the battery must be discharged within the ambient temperature range specified in the specifications.

2. To prevent excessive discharge caused by battery self consumption, it is recommended to charge every three months. If the storage time exceeds six months, it is recommended to charge and discharge the battery every six months to activate it.

3. Adhering to these discharge requirements can ensure the normal use of the battery and extend its lifespan. Please pay attention to regular charging and discharging to maintain the performance of the battery.

10.3 Storage requirements

Storage requirements are regulations that ensure the battery can remain in good condition when not in use. Please comply with the following storage requirements:

1. The battery pack should be stored at room temperature (15-25 °C) and humidity of 60 ± 20% RH.

2. Before storage, the battery should be charged to a charge of 40% to 60%.

3. If the battery is planned to be stored for more than 30 days, its state of charge (SOC) should be adjusted to approximately 50%. After storing for three months, a charge and discharge should be performed to readjust the SOC to 50%.

4. If the battery is stored at 50% SOC for more than 6 months without charge and discharge maintenance, it may result in approximately 5% irreversible capacity loss. If the battery is stored at 50% SOC for more than 9 months without charge and discharge maintenance, it may cause capacity loss or other defects to the battery, and we will not be responsible for warranty in this case. Adhering to these storage requirements can protect the performance and lifespan of the battery, ensuring its proper functioning when needed. Please pay attention to regular charging and discharging maintenance to maintain the battery's condition.

10.4 Charged shipment

The charged capacity of the shipment refers to the charging state that the battery should have during transportation. According to different modes of transportation, the requirements for the shipment's electrical capacity are as follows:

The electrical charge requirement for air transportation is within the range of 20% to 30% SOC (State of Charge).

2. The required electrical charge for ocean or land transportation is within the range of 40% to 60% SOC.

Adhering to these requirements can ensure the safety of batteries during transportation and reduce potential risks. Please ensure that the charged capacity of the battery is within an appropriate range according to the transportation method when arranging the transportation of the battery.

11. Warning

To ensure safe use of the battery pack, the following are some usage rules and precautions:

1. It is prohibited to disassemble or change the external structure of the battery, and it is not allowed to disassemble or change its external structure on its own.
2. Use a dedicated lithium-ion battery charger for charging, ensuring that you choose a charger that is suitable and meets the battery specifications for charging.
3. It is prohibited to use the battery pack by reversing the positive and negative poles. Connect the wires correctly to ensure that the positive and negative terminals of the battery are connected correctly.
4. It is prohibited to directly connect the battery pack to a power outlet to avoid directly connecting the battery pack to a power outlet.
5. It is prohibited to directly short-circuit the positive and negative terminals of the battery pack with metal objects to prevent the occurrence of short circuits.
6. It is prohibited to transport and store batteries together with metal objects to avoid contact and potential hazards.
7. Do not strike, throw or step on the battery pack to prevent physical damage to the battery pack.
8. It is prohibited to hit the battery pack with sharp parts or pierce the battery pack. Avoid damaging the battery pack.
9. It is strictly prohibited to immerse the battery pack in seawater or water to avoid contact between the battery and water and prevent dangerous situations from occurring.
10. It is prohibited to use the battery pack in high-temperature environments, such as fire sources, heaters, strong sunlight, and hot cars. Avoid the impact of high temperature environment on the battery pack.
11. It is prohibited to directly weld battery packs or cells. Do not perform direct welding operations on the battery pack.
12. It is prohibited to use battery packs in environments with strong static electricity and strong magnetic fields. These environments may have an impact on the safety protection devices of the battery pack, leading to safety hazards.

When the battery experiences a short circuit, collision, or drops, it should be immediately marked and isolated. Even if the battery appears to be functioning properly, it should not continue to be used. Properly handle problematic batteries.

Please be sure to follow the above usage rules and precautions to ensure the safe use of the battery pack and prevent potential hazards.

12. Attention

1. Please ensure that the voltage and current generated by the load do not exceed the reverse voltage and current rating of the BMS (Battery Management System) to avoid damaging the BMS board.
2. If the battery leaks, do not touch your eyes with your hands. Rinse your eyes immediately with clean water and seek medical attention to avoid eye injury.
3. If any abnormalities occur during battery use or storage, such as unusual odors, heating, discoloration, deformation, or abnormal charging conditions, stop using the battery immediately and remove it from the charger or device.
4. Before using the battery, ensure that the battery connection contacts are clean to ensure good contact and prevent performance issues.
5. When disposing of batteries, wrap the electrodes in insulating paper to prevent short circuits, smoking, or fire hazards.
6. Follow the above precautions to ensure safe use of the battery. If you encounter any problems or abnormalities, take appropriate measures or consult a professional promptly.

13. Warranty

13.1 Core Quality Assurance Commitment

We deeply understand the importance of product quality to every customer. Therefore, we promise that if the product malfunction is identified by our after-sales technical team as a quality problem of the product itself, rather than caused by user abuse, incorrect use, self disassembly and modification, intentional damage or other force majeure factors, we will provide comprehensive warranty services.

13.2 Battery Warranty Details

For battery products, we are particularly concerned about their safety and stability. If the battery malfunctions due to the product itself during the warranty period, we will provide warranty services. If the battery defect cannot be repaired after evaluation, we will replace it with a brand new battery for you.

13.3 Warranty Process

In order to provide you with more efficient service, please provide the following information when applying for warranty:

1. Complete purchase voucher
2. Detailed fault description

Our after-sales team will contact you as soon as possible to evaluate your product and provide you with the best solution.

13.4 Warranty Regulations

The specific warranty details shall be subject to the warranty terms in the sales contract signed between you and the sales team. We suggest that you carefully read and understand the relevant terms before purchasing to ensure that your rights are fully protected.

13.5 Special Needs Negotiation

If you have special requirements for the product you have purchased that exceed our standard warranty policy, we are more than happy to negotiate with you. Please have in-depth communication with our sales representative at the time of purchase and jointly develop a special warranty service agreement applicable to the product. We will spare no effort to provide you with solutions that meet your special needs and offer corresponding warranty services according to the agreement.

We always adhere to customer-centric approach and provide you with the highest quality products and services. If you have any questions or need assistance, please feel free to contact us at any time.

14. Other matters

1. Please read the product manual carefully before using the battery and follow the instructions in the manual for operation. Incorrect use may cause the battery to overheat, crack, catch fire, be damaged, or experience capacity degradation, and may even result in personal and property damage.
2. If the customer intends to use the battery beyond the scope specified in the document or under special usage conditions, please contact us in advance. We need to conduct specific experiments and tests to verify the performance and safety of the battery under these conditions.
3. Our company is not responsible for any losses or accidents caused by the use of this product beyond the scope specified in the document.
4. Unless both parties agree through consultation, matters not mentioned in this specification shall not have legal effect.
5. Without prior notice to the customer, our company has the right to upgrade and adjust the performance or specification parameters of the product.