

# User Manual

Customer's Name:

Spec.No. : 20260112-001

Item Coding:

Ver: A0

Date: 2026-1-12

Anhui GP New Energy Co., Ltd

## Specification For Approval

Specifications: 72173200-16S1P-51.2V 314Ah (Vertical)

Approval	Checked	Draft
Customer Approval		

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## 1. Scope

The specification shall be applied to LiFePO<sub>4</sub> rechargeable battery pack Of 72173200-16S1P which is manufactured by GP New Energy Technology Co., Ltd.

## 2. Main specifications

### 2.1 Cell Battery specifications

Cell	No.	Item	General Parameter		Remark	
	1	Rated Capacity	Typical	314Ah		Standard discharge ( 0.2C5A) after Standard Charge
			Minimum	314Ah		
	2	Nominal Voltage	3.2V		Mean Operation Voltage	
	3	Internal Impedance	R≤0.5 mΩ		Internal resistance measured at AC 1KHZ after 50% charge The measure must uses the new batteries that within one week after shipment and cycles less than 5 times	
	4	Dimension	Thickness:Max72±0.5mm		Initial Dimension	
			Width : Max 174±0.3mm			
			Height : Max 200±0.3mm			
	5	Weight	5.9kg		APPROX	
	6	Standard charge	Constant Current 0.5C5A Constant Voltage 3.65V 0.02C5A cut-off		Charge time : Approx2h	
7	Rapid Charge	Constant Current 1C5A Constant Voltage 3.65V 0.01C5A cut-off		Charge time : Approx1h@≧10°C		
8	Standard discharge	Constant current: 0.5C5A end voltage 2.5 V		75A		
9	Maximum discharge current	Constant current : 1C5A end voltage : 2.5 V		150A@≧0°C		

## 2.2 Battery Pack specifications

No.	Item	General Parameter		Remark
1	Combination method	16S1P		
2	Rated Capacity	Typical	314Ah	Standard discharge after Standard charge ( package)
		Minimum	314Ah	
3	Factory Voltage	52V-53V(40-60%)		Mean Operation Voltage
4	Voltage at end of Discharge	40-44V		Discharge Cut-off Voltage
5	Charging Voltage	58.4V		
6	Internal Impedance	≤50mΩ		Internal resistance measured at AC 1KHZ after 50% charge
7	Standard charge	Constant Current157A Constant Voltage see No.5 0.02CA cut-off		Charge time : Approx 2h
	Limiting current	20A		
8	Standard discharge	Constant current : 157A end voltage see NO.4		
9	Maximum Continuous Charge Current	200A		T≥10°C
10	Maximum Continuous Discharge Current	200A		T≥10°C
11	Operation Temperature Range	Charge: 0~45°C		60±25%R.H. Bare Cell
		Discharge: -20~55°C		
12	Storage Temperature Range	Less than 12 months : -10~35°C		60±25%R.H. at the shipment state
		less than 3 months: -10~45°C		
		Less than 7 day : -20~65°C		
13	Dimensions	550*300*901.5mm		
14	Weight	Approx : 130kg		
15	Cycle Performance	≥6000 cycles		

### 3. Battery Management System Specification

#### 3.1 BMS function introduction

1): The BMS is designed for 16 series lithium battery.

2): The BMS have all functions which are :

overcharge detection function

over discharge detection function

over current detection function

short detection function

Temperature detection function

balance function

communicate function

Alarm function

Total capacity function

Storage history function

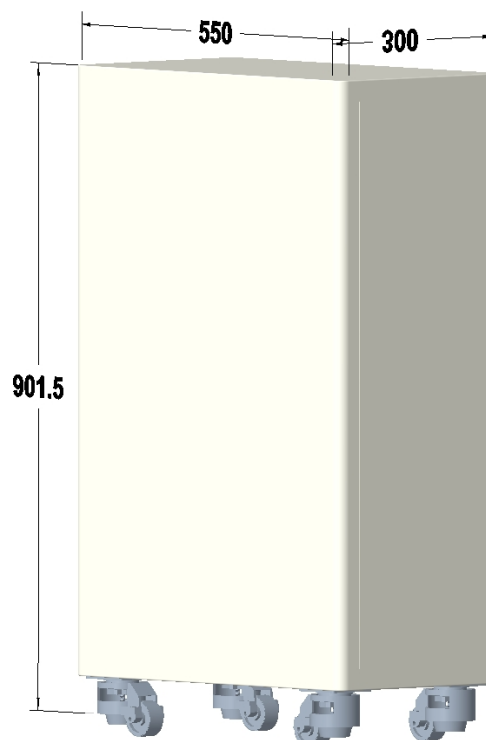
#### 3.2 BMS Protect parameter

Items	Details	Standard
Cell overcharge protection	Overcharge detection voltage	3.70±0.025V
	Overcharge detection delay time	Typical:1.0s
	Overcharge release voltage	3.38±0.02V
Cell over-discharge protection	Over-discharge detection voltage	2.7±0.02V
	Over-discharge detection delay time	Typical:1.0s
	Over-discharge release voltage	2.95±0.02V or charge release
Over-current protection	discharge Over-current protection current1	230A
	discharge Over-current detection delay time 1	5S
	discharge Over-current protection current 2	250A
	discharge Over-current detection delay time 2	≤100ms
	Charge OC protection current	130A
Short protection	Short protection current	400A
	Protection condition	Load short
	Protection release condition	Charging release/Remove load
Temperature(T) protection	Charge high T protection	65±3°C
	Charge high T recover	55±5°C
	Discharge high T protection	70±5°C

	Discharge high T recover	60±5°C
	Charge low T protection	-5±5°C
	Charge low T recover	0±5°C
	Discharge low T protection	-20±5°C
	Discharge low T recover	-15±5°C
Communication	It has RS232 /RS485 and canbus standard communication interface, it can real-time monitoring the capacity of battery bank, the voltage, current, environment temperature, and charging/discharging current.	
Alarm	It has over-temperature, over charge, under-voltage, over-current, short circuit alarm Function.	

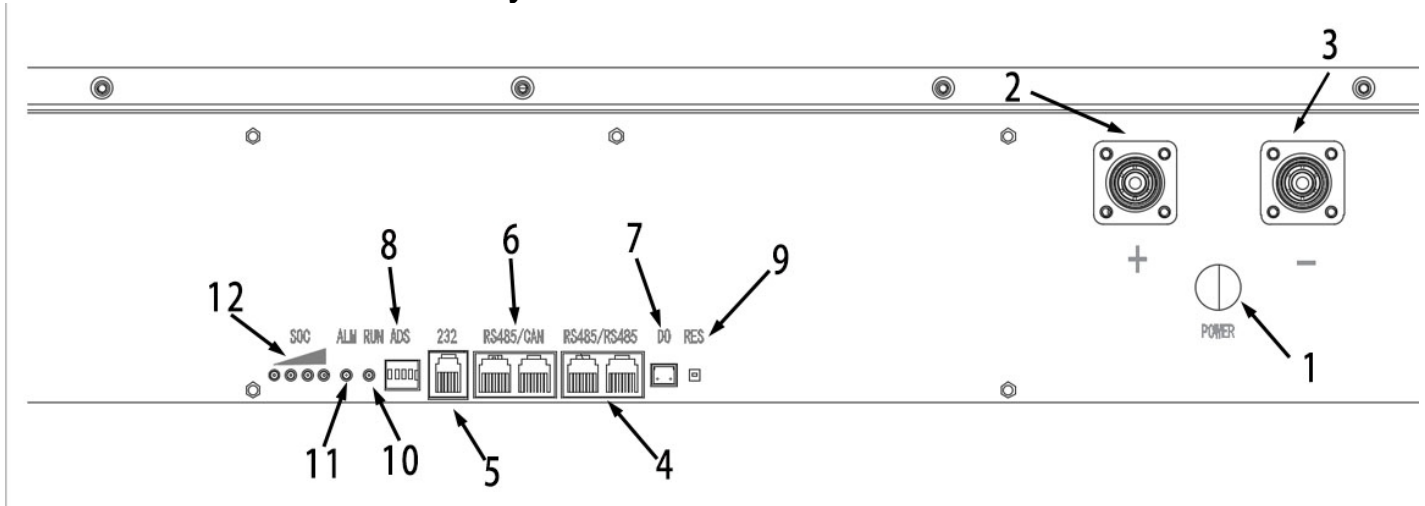
#### 4. Appearance and structural dimensions

There shall be no such defect as scratch, bur and other mechanical scratch, and the connector should be no rust dirt. The structure and dimensions see attached drawing of the battery.



Unit					
H	901.5	W	5500	D	300
L	/	WIRE	/	Terminal	8mmFast-plug connectors
Output wire: Wire diameter 50m <sup>2</sup> , wire length 1.5m					

## 5. Case Structure of Battery Pack



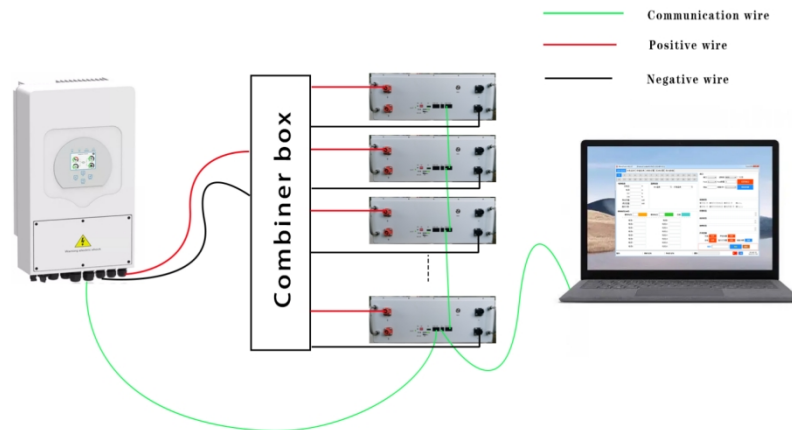
The panel marking corresponds to the following description

No.	Description	Silk-screen	Remark
1	Switch	POWER	Battery switch
2	Positive terminal	P+ P+	Output terminal
3	Negative terminal	P- P-	Output terminal
4	RS485 Port	RS485/RS485	Battery parallel communication port
5	RS232 Port	RS232	RS232 communication port
6	RS485 Port	RS485	RS485 and inverter connection port
	CANBUS Port	CAN	CANbus and inverter connection port
7	DO		
8	Dial switch	ADS	Set the address
9	port Reset button	RES	For reset the batter
10	LED	RUN	Operation indicator
11	LED	ALM	Alarm indicator
12	Battery capacity	SOC	Remaining battery capacity

## 6. Connection mode for parallel communication

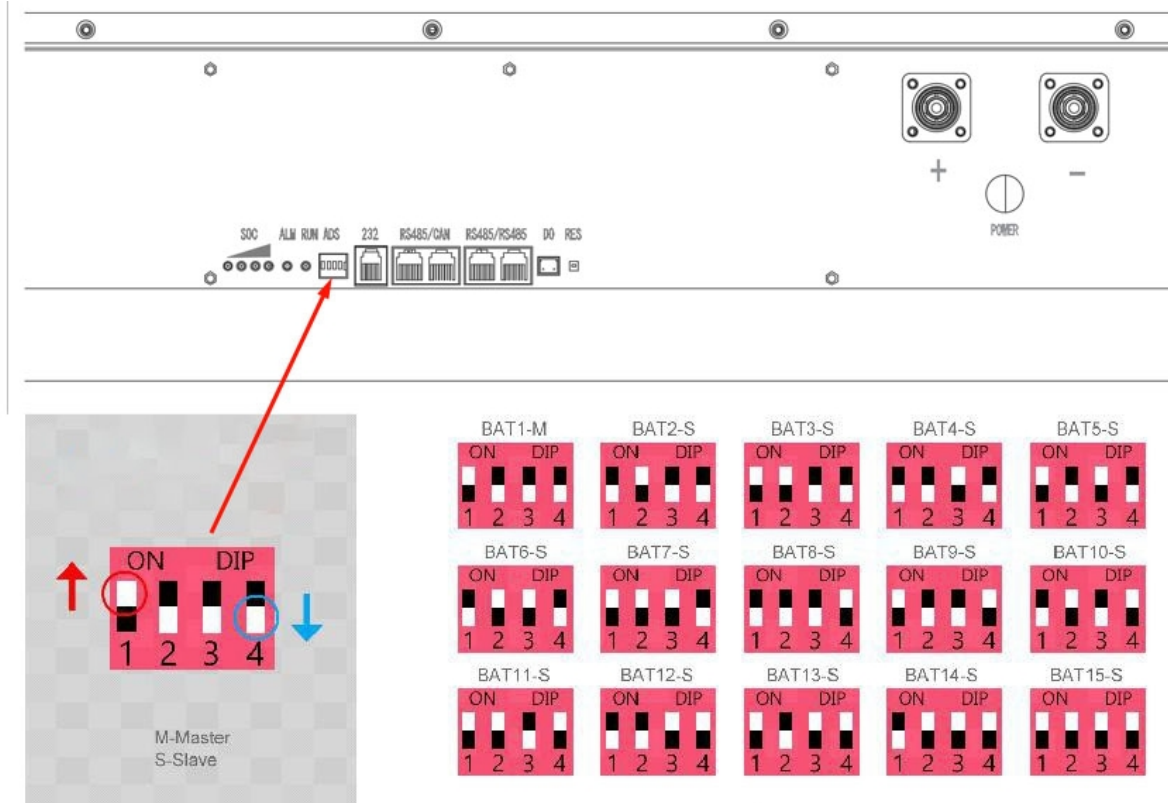
### 6.1 RS485 Parallel Communication

The coding switch is used to set the address of each BMS protection board. The code value of the ON position is 1, the code value of the 1234 position is 0, the address of the main board is 0, and the address of the slave is 1~15.



Note: RS485 communication address can not be 0, the address set by the host computer is required to be the same as the battery communication address, do not have duplicate addresses, otherwise communication may be affected.

### 6.2 Address Switch function (Only in Parallel)



## 7. Packaging of Battery Pack

Battery Module size: 550\*300\*901.5mm



## 8. Battery test equipment

### 8.1 Dimension Measuring Instrument

The dimension measurement shall be implemented by instruments with equal or more precision scale of 0.1mm.

### 8.2 Voltmeter

Standard class specified in the national standard or more sensitive class having inner impedance not less than 10 K $\Omega$ /V.

### 8.3 Ammeter

Standard class specified in the national standard or more sensitive class. Total external resistance including ammeter and wire is less than 0.01 $\Omega$ .

### 8.4 Impedance Meter

Impedance shall be measured by a sinusoidal alternating current method(AC 1kHz LCR meter).

## 9. Standard Test Condition

Test should be conducted with new batteries within one month after shipment from our factory and the cells shall not be cycled more than five times before the test. Unless otherwise defined, test and measurement shall be done under temperature of 23 $\pm$ 2 $^{\circ}$ C and relative humidity of less Unless otherwise defined, 30min,rest period after charge,30min,rest period after discharge.

## 10. Storage and Others

### 10.1 Long Time Storage

If stored for a long time(don't used,exceed three months), the cell should be stored in drying and cooling place. The cell's storage voltage should be 48.0V-51.0V and the cell is to be stored in a condition that the temperature of 23 $\pm$ 2 $^{\circ}$ C and the humidity Of 45%- 75%. Long-term use of unused batteries to recharge every 3 months。 Ensure that the battery voltage is within the above range.

## 10.2 Others

Any matters that this specification does not cover should be conferred between the customer and GP

## 11. Amendment of this Specification

This specification is subject to change with prior notice.

## 12. Appendix

### **Handling Precautions and Guideline For Li-ion Rechargeable Batteries**

#### **Preface**

This document of 'Handling Precautions and Guideline Li-ion Rechargeable Batteries' shall be applied to the battery cells manufactured by GP.

#### **Note (1) :**

The customer is requested to contact GP New Energy Technology Co., Ltd. in advance, if and when the customer needs other applications or operating conditions than those described in this document. Additional experimentation may be required to verify performance and safety under such conditions.

#### **Note (2) :**

GP New Energy Technology Co., Ltd. is not responsible for any accidents caused by using the battery under conditions other than those specified in this specification.

#### **Note (3):**

GP New Energy Technology Co., Ltd. will inform, in a written form, the customer of improvement(s) regarding proper use and handling of the cell, if it is deemed necessary.

### **Danger!**

- Do not immerse the battery in water or allow it to get wet.
- Do not use or store the battery near sources of heat such as a fire or heater.
- Do not use any chargers other than those recommended by GP.
- Do not reverse the positive(+) and negative(-) terminals.

- Do not connect the battery directly to wall outlets or car cigarette-lighter sockets.
- Do not put the battery into a fire or apply direct heat to it.
- Do not short-circuit the battery by connecting wires or other metal objects to the positive(+) and negative(-) terminals.
- Do not pierce the battery casing with a nail or other sharp object, break it open with a hammer, or step on it.
- Do not strike, throw or subject the battery to sever physical shock.
- Do not directly solder the battery terminals.
- Do not attempt to disassemble or modify the battery in any way.
- Do not place the battery in a microwave oven or pressurized container.
- Do not use the battery in combination with primary batteries(such as dry-cell batteries) or batteries of different capacity, type or brand.
- Do not use the battery if it gives off an odor, generates heat, becomes discolored or deformed, or appears abnormal in any way. If the battery is in use or being recharged, remove it from the device or charger immediately and discontinue use.

### **Caution!**

Do not use or store the battery where is exposed to extremely hot, such as under window of a car in direct sunlight in a hot day. Otherwise, the battery may be overheated. This can also reduce battery performance and/or shorten service life.

If the battery leaks and electrolyte gets in your eyes, do not rub them. Instead, rinse them with clean running water and immediately seek medical attention. If left as is, electrolyte can cause eye injury.