BST-LRG BATTERY SPECIFICATION

Product type: LRG Battery

product model: BST-LRG-12.8V200Ah

Guangzhou Best Electronic Technology Co. ,Ltd

Amendment Records

1.Scope of application

This specification describes the technical index requirements of 12.8V200Ah lithium iron phosphate battery.

2. Model：12.8V200Ah

2.1 The battery uses a cylindrical cell model of 32700 lithium iron phosphate 3.2V6.0Ah;

2.2 The entire battery pack is composed of 34PCS cells in parallel to form a battery string, and 4 strings of cells are connected in series to form a battery module, a total of 136PCS cells;

3. Reference standards and test requirements

3.1 YD/T2344.1-2011 Lithium iron phosphate battery pack for communication.

3.2 UN38.3 "Recommendation on the Transport of Dangerous Goods: Manual of Tests and Standards" Part III, Section 38.3

3.3 GB4208-2008/IEC60529:2001 Cover protection class (IP code)

3.4 GB/T 1804-2000 General tolerances Tolerances of linear and angular dimensions without tolerances

3.5 Standard test environment

Unless otherwise specified, all tests in this specification are carried out under the following environmental conditions:

Temperature: (25±2)℃

Humidity: (65±20)%RH

Standard charging current: 0.3C

Standard discharging current: 200A

4. Technical Parameters

4.1 System parameters

Project			Specification	Remarks
1	Rated voltage		12.8V	
2	Nominal capacity		200Ah	After standard charging, 200A current discharge capacity: ≥200Ah
3	Nominal voltage		12.8V	The median voltage of the standard discharge process after standard charging
4	Maximum continuous charging current		200A	1.0C
5	Maximum continuous discharge current		200A	1.0C; peak current: 300A for 5s
6	Cycle life		2000 cycles	25℃±2℃;1.0C charge, 1.0C discharge;80%DOD
7	Upper charging voltage		(14.6±0.05)V	@(20-45)℃
8	Discharge termination voltage		8.8V	Determining discharge cutoff voltage of capacity, single series cutoff voltage 2.2V
9	Charge time		About 3h	Rated charging current: 0.3C
10	Charge-discharge efficiency		≥96%	Volumetric efficiency
11	Cooling way		Natural cooling	
12	Operating Temperature	charging	(0-60)℃	
		discharge	(-20-60)℃	
13	Relative humidity		(65±20)%	
14	Battery pack composition		34 parallel and 4 series	A total of 136PCS battery cells
15	Battery Pack Weight		≤26.5Kg	

4.2 BMS **Parameters**

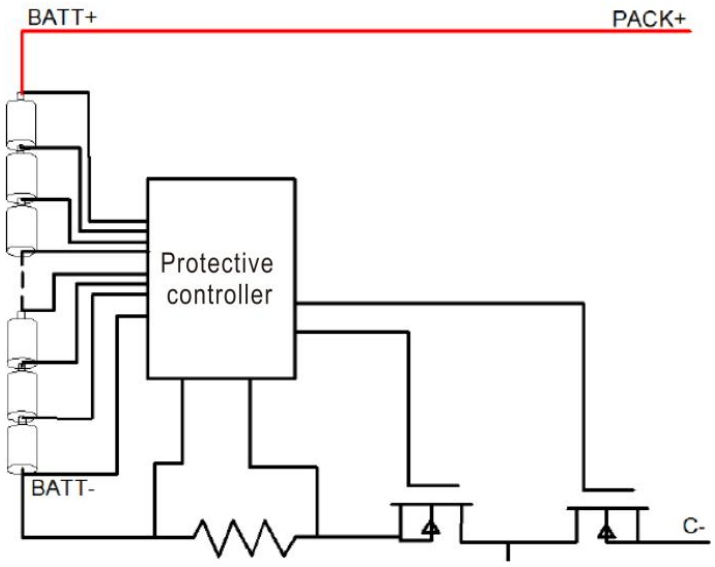
4.2.1 BMSfunction introduction：

- Discharge over current and short circuit protection function.
- Over voltage, less voltage and over load protection functions;
- Using an integrated solution, the performance of the protection board is more stable;
- Using imported MOS tube, low internal resistance, high current, high precision;
- Balance function.

4.2.2 BMSparameters

Voltage	charging voltage	14.6V
Operating current	Operating range	0-200A
Operating Temperature	Operating range	-20℃ ~ +60℃
Power Self-consumption	Power Self-consumption in working condition	≤50μA
internal resistance		≤20mΩ
Overcharge protection	Protection voltage	3.75±0.025V
	Recovery voltage	3.55±0.050V
	Over voltage protection delay	600mS
Over discharge protection	Protection voltage	2.20±0.1V
	Recovery voltage	2.70±0.1V
	protection delay	600ms
Discharge over current protection	Protection current	600±100A
	protection delay	600mS
short circuit protection	protection delay	250us
	Recovery conditions	Disconnect load
Charge balance	Charge balance start voltage	3.5±0.025V
	Balance current	150±250mA
dimension	211*100*32mm	

4.2.3Protection board schematic diagram



4.3Battery pack structure size

4.3.1Battery outline drawing（522×239×218mm;tolerance class：GB/T1804-M）

12V150Ah Battery outside picture
（Picture only for you reference,result depends on production）

5． Battery performance

5.1 Cycle performance

Project		Standard	Test Conditions
1	Cycle life	After 2000 cycles, the remaining capacity is ≥ 80% of the rated capacity	In a 25℃ environment, charge and discharge with 1.0C current 80% DOD

5.2High and low temperature performance

Project		Standard	Test Conditions
1	-20℃ low temperature discharge	Discharge capacity ≥ 70%* rated capacity	After standard charging, let it stand for 20h in an environment of -20℃±2℃, and discharge to the cut-off voltage at a constant current of 0.3C;

2	55℃High temperature discharge	Discharge capacity ≥ 95%* rated capacity	After standard charging, let it stand for 5h at 55℃±2℃environment, discharge to cut-off voltage at 0.3C constant current

5.3 Storage performance

Project			Initial SOC	Standard	Condition
1	Capacity retention rate	25 ℃ 1month	100%	90%	The percentage of the discharge capacity after storage to the capacity before storage, test condition: standard charge and discharge
		60℃ 7day	100%	90%	
2	Capacity recovery rate	25 ℃ 1month	100%	95%	After testing the remaining capacity after storage, charge and discharge as standard Power cycle 3 times, the highest capacity is the recovery capacity, the percentage of the recovery capacity and the capacity before storage is the recovery rate
		60℃ 7day	100%	95%	

6. Storage and transportation

6.1According to the characteristics of the battery, the lithium iron phosphate battery pack should meet its storage environmental conditions during storage and transportation, so as to protect the battery performance to the utmost.

6.2Appropriate protection should be provided during storage and transportation of lithium iron phosphate batteries;Maintain a SOC level of about 50%; ensure that no short circuit and liquid enter the lithium iron phosphate battery or soak in liquid (such as water, oil, etc.);

6.3 If not in use temporarily, the battery should be stored in a dry, clean and well-ventilated warehouse at 0℃～45℃.

6.4 During the process of loading and unloading, the battery should be handled with care, and avoid dropping, rolling, and heavy pressure.

7.Safety rules

Misuse of lithium-ion rechargeable batteries may cause battery damage or personal injury. Before using the lithium-ion rechargeable battery, please read the following safety rules carefully

7.1 Battery precautions

7.1.1 Do not expose the battery to extreme heat or fire.

7.1.2 Do not short-circuit, overcharge or over-discharge the battery.

7.1.3 Do not subject the battery to excessive mechanical shock.

7.1.4 Do not immerse the battery in sea water or water, or make it damp.

7.1.5 Do not disassemble or repair the battery.

7.1.6 Do not put the battery and metal objects such as necklaces, coins or hairpins together.

7.1.7 Do not cause obvious damage or deformation of the battery.

7.1.8 Do not connect the battery directly to the socket.

7.1.9 Do not mix lithium-ion batteries.

7.1.10 Do not place the battery in direct sunlight.

7.1.11 Keep the battery away from children.

7.1.12 Do not puncture, beat or trample the battery.

7.2Battery instructions

7.2.1 Charging

1) The battery charging temperature range is (0-60)℃.

2) Use a constant current and constant voltage lithium-ion battery charger.

3) Correctly connect the positive and negative poles of the battery, and reverse charging is strictly prohibited. If the positive and negative poles of the battery are reversed, there is a risk of arcing and short circuit.

7.2.2 Discharge

1) The discharge temperature range of the battery is (-20-60)℃.
2) During the long period of non-use of the battery, the battery may be in a certain over-discharged state due to its self-discharge characteristics. In order to prevent the occurrence of over-discharge, the battery should be charged regularly to maintain its cell voltage between (3.3-3.5)V. Over-discharge will cause the loss of battery performance and function.