Specification for LiFePO4 Battery

Pack Model:	LFP12.8-20
Cell Model:	LiFePO4 Battery 3.2V20Ah
Pack:	4S
Voltage:	12.8V
Capacity:	20Ah/256Wh

1. Scope

This specification only applies to the reference battery in this specification and manufactured by Our company.

2. Rating

Item		Rating	Note
Battery Pack	Type	LiFePO4 Battery	
	Pack Method	4S	
	Nominal Capacity	20Ah	Discharge : 0.5C Cut-off Voltage:10V
	Minimum Capacity	19.2Ah	Discharge : 0.5C Cut-off Voltage:10V
	Nominal Voltage	12.80V	
	Energy	153.6Wh	
	Charge Voltage	14.60V	
	Discharge cut-off Voltage	10V	
	Charge Method	CC/CV	
	Standard Charge Current	≤ 20A	
	Max.Charge Current	≤ 20A	
	Standard Discharge Current	≤ 20A	
	Max.Continues Discharge current	≤ 20A	
	Cycle Life	≥ 2500 times	80% DOD
	Internal Impedance	≤ 30mΩ	
	Dimension	L151 x W77 x H167 mm	ABS
	Terminal	M5	
	Communication interface	/	
	Monitoring software	/	
	Weight	Approx. ≈2.5kg	
	Working Temperature Range	Charge: 0°C--40°C Discharge: -10°C--55°C	
	Storage Temperature	0°C--40°C(Recommendation 23±2°C)	

3. Protection Circuitry Function

Features	Test items	Specification			Unit
		Minimum value	Typical value	Maximum value	
Operating Voltage	Voltage range	2.10	/	3.75	V

Features	Test items	Specification			Unit
		Minimum	Typical	Maximum	
Working current	Charge current (continuous)	/	/	20	A
	Discharge current (continuous)	/	/	20	A
Charging protection	Charger Voltage (CC-CV)	3.60			V
	Overcharge protection voltage	3.70	3.75	3.80	V
	Overcharge protection delay time	500	100	200	mS
	Overcharge protection recovery voltage	3.55	3.60	3.65	V
Discharge protection	Over discharge protection voltage	2	2.10	2.2	V
	Over-discharge protection delay time	100	300	500	mS
	Over-discharge protection recovery voltage	2.20	2.30	2.40	V
Overcurrent Protection	Charge overcurrent protection value	/	/	/	A
	Charge overcurrent delay	/	/	/	S
	Charge Overcurrent Release Recovery	/			
	Discharge overcurrent 1 Protection current	125	140	155	A
	Discharge overcurrent 1 protection delay	50	150	250	mS
	Discharge overcurrent 2 Protection current	/	/	/	/
	Discharge overcurrent 2 protection delay	/	/	/	/
	Discharge overcurrent protection recovery	Charging			
Short circuit protection	Short circuit protection delay time	200	/	300	uS
	Short circuit protection recovery	Disconnect the load			
Balance function	Balance turn-on voltage	/	/	/	V
	Balance opening differential pressure	/	/	/	mV
	Balance mode	/			
	Balance current	/	/	/	mA
Temperature protection	Charging high temperature protection value	/	/	/	℃
	Charging high temperature protection release value	/	/	/	℃
	Charging low temperature protection value	/	/	/	℃
	Charging low temperature protection release value	/	/	/	℃
	Discharge high temperature protection value	/	/	/	℃
	Discharge high temperature protection release value	/	/	/	℃
	Discharge low temperature protection value	/	/	/	℃
	Discharge low temperature protection release value	/	/	/	℃

Features	Test items	Specification			Unit
		Minimum value	Typical value	Maximum value	
Internal resistance	Discharge circuit internal resistance	/	5	20	mR
Self-consumption	Operating mode	/	30	50	mA
	Sleep mode	/	/	/	uA
	Sleep Conditions and Delays	/			

4. Performance

4.1 Standard Test Condition

The battery shall be evaluated within 1 month from the arrival date.

Unless otherwise stated in these specifications, the following test shall be carried out in an ambient temperature of 20±5℃, relative humidity of 65±20%

Discharge capacity when the battery is discharged at 10A to 10V after being standard charged. Five cycles are permitted for this test. The test shall be terminated at the end of the first cycle which meets the requirement.

4.2 Testing Instrument or Apparatus

4.2.1 Dimension Measuring Instrument

The dimension measurement shall be implemented by instruments with equal or more precision scale of 0.01mm specified.

4.2.2 Voltmeter and Ammeter

Voltmeters and ammeters shall be equal or more precision instruments of 10KΩ/V and 0.01Ω.

4.2.3 Impedance Meter

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

4.3 Standard Charge

CC-CV Charge with constant current to stated voltage,then charge with constant voltage to cut-off current

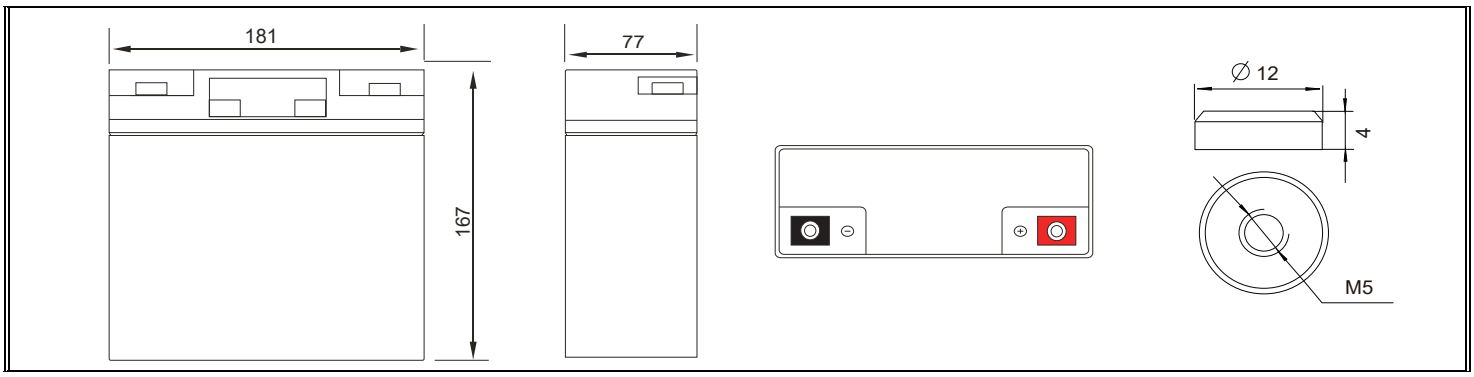
4.4 Standard Discharge

Standard discharge means discharging at 10A down to 10V

5. Appearance

It shall be free from any defects such as scratch, contamination and leakage.

6. Pack Drawing



Packing List

Serial number	Material packing list	Qty	Unit
1	12.8V 20ah lifepo4 battery pack	4	Pcs
2	M5 Screw/with gasket	2	Pcs
3	Specification	1	Part

7. Battery operation instruction

7.1 Charging

Charging current： Do not surpass the biggest charging current which in this specification。

Charging voltage： Do not surpass the highest voltage which in this specification。

Charge temperature： The charge temperature is in according to this specification。

Please do not continuously charge the battery over 8hours.

7.2 Discharging

Discharge current: Do not surpass the biggest discharge current which in this specification.

Discharge voltage: Do not be less than the lowest voltage which is in this specification.

Discharge temperature: The discharge temperature is in according to this specification

7.3 Over-discharges

After the short time excessively discharges charges immediately cannot affect the use, but the long time excessively discharges can cause the battery the performance, battery function losing. The battery long-term

has not used, has the possibility to be able to be at because of its automatic flashover characteristic certain excessively discharges the condition, for prevented excessively discharges the occurrence, the battery should maintain the certain electric quantity.

7.4 Storing the Batteries

The battery should store in the product specification book stipulation temperature range. If has surpasses above for 3 months the long time storage, suggested you should carry on additional charge to the battery.

8. Warranty

As long as the cell is treated in accordance with this Product Specification and / or Handling Precautions and Prohibitions, Supplier warrants that the cell should be free from any defect for a period of 60 months (25˚C or less) from the date of shipment or for 2000 cycles, whichever comes earlier.

9. Caution

Please read the manual carefully before using it in order to ensure proper use of the battery.

Series-parallel instruction:

◎Max support 4 module in parallel
◎The parallel modules must have the same voltage, the same capacity, and the same batch;
◎After parallel connection, only diffuser capacity is allowed, and the charge and discharge current is not increased
◎Module parallel differential pressure ≤100mV

10. Warnings

To prevent the possibility of the battery from leaking, heating, fire, Please READ this specification carefully before usage and observe the following precautions:

◎When recharging, use the LiFePO4 battery charger specifically for that purpose
◎Do not strike battery with any sharp edge parts, such as Ni-tabs, pins and needles
◎Do not immerse the battery in water and seawater
◎Do not use and leave the battery near a heat source as fire or heater
◎Do not reverse the position and negative terminals
◎Do not connect the battery to an electrical outlet
◎Do not discard the battery in fire or heat it
◎The battery tabs are not so stubborn especially for aluminum tab. Do not bend tab.
◎Do not short-circuit the battery by directly connecting the positive and negative terminal with metal object.
◎Do not transport and store the battery together with metal objects such as necklaces, hairpins etc.
◎Do not directly solder the battery and pierce the battery with a nail or other sharp objec

11. Others

◎The customer is requested to contact OUR COMPANY 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.

◎OUR COMPANY will take no responsibility for any accident when the battery is used under other conditions than those described in this Document.

◎OUR COMPANY will inform, in a written form, the customer of improvement(s) regarding proper use and handing of the battery, if it is deemed necessary.