LIFEPO4 Battery Specification

MODEL : LFP150-12.8 12.8V150Ah

(LFP32650 3.2V6Ah-4S21P)

1. Scope

This specification only applies to the reference battery in this specification and manufactured by GEPCO SOLAR GmbH.

2. Rating

Item		Rating	Note
Cell	Type	LiFePO4 Battery	
	Cell Model	LFP32650-3.2V6AH	
	Nominal Capacity	6Ah	Discharge : 0.2C Cut-off Voltage:2.5V
	Minimum Capacity	5.58Ah	Discharge : 0.2C Cut-off Voltage: 2.5V
	Nominal voltage	3.2V	
	Internal Impedance	≤5mΩ	
	Dimension	MAX. 32*65mm	
	Weight	Approx. 0.15kg	98% High density Lead(Pb) 1% Lithium+1% Fe

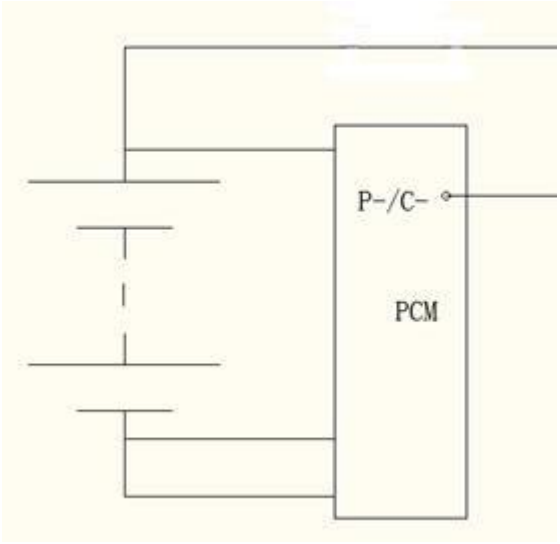
Batterypack	Pack Method	4S21P	
	Nominal Capacity	155Ah	Discharge : 0.2C Cut-off Voltage:10V
	Minimum Capacity	150Ah	Discharge : 0.2C Cut-off Voltage: 10V
	Nominal Voltage	12.8V	
	Energy	1600Wh	
	Charge Voltage	14.6V	
	Discharge cut-off voltage	10V	
	Charge Method	CC/CV	
	Standard Charge Current	19A	
	Max. Charge Current	100A	
	Standard Discharge Current	19A	
	Max. Continues Discharge current	100A	
	Cycle Life	2000 times（周）	80%
	Internal Impedance	≤60mΩ	
	Dimension	406*173*219 mm	
	Output Wire		
	Output Connector	/	
	Weight	Approx.15kg	
	Working Temperature Range	Charge: 0°C--45°C Discharge: -20°C--60°C	
	Storage Temperature	-10°C--45°C	

Material : The Gepco Solar LifePo4 Battery contains a high quality Plumb with Lithium parts

3.1 PCM Parameter

No.	Item		Standard
1	Charge Current		≤100A
2	Discharge Current		≤100A
3	Overcharge	Over-Charge Detect Voltage	3.90±0.05 V
		Over-Charge Delay Time	0.5-2S
		Over-Charge Reset Voltage	3.60±0.10 V
4	Over-discharge	Over-Discharge Detect Voltage	2.00±0.10 V
		Over-Discharge Delay Time	10-400mS
		Over-Discharge Reset Voltage	2.70±0.10V
5	Over-current	Over-Current Detect Current	300±50 A
		Over-Current Delay Time	5-60ms
		Reset	Release load
6	Short Circuit	Detect Status	External Short Circuit
		Reset	Release load
7	Resistance		≤20mΩ

3.2 Product Circuit diagram



4. Appearance

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

5. Performance

5.1 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 19A 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.

5.2 Testing Instrument or Apparatus

5.2.1 Dimension Measuring Instrument 0.01mm.

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

5.2.2 Voltmeter and Ammeter

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

5.2.3 Impedance Meter

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

5.3 Standard Charge

Standard charge means charging for 6hours using 14.6V/19A charger

5.4 Standard Discharge

Standard discharge means discharging at 19A down to 10V

5.5 Electrical Performance

Item	Condition	Specification
Open-Circuit Voltage	The open-circuit voltage shall be measured within 24hours after standard charge	≥13.2V
Battery Capacity	The discharge time at 19A shall be measured after standard charge at 20±5℃ and rest 30mins	≥100%
Cycle Life	The discharge time on standard discharge shall be measured after 2000 cycles of standard charge and discharge at 20±5℃	≥80%
Charge(capacity) retention	The discharge time at 19A shall be measured after standard charge and then storage at 20±5 ℃ for 28days	≥80%
Temperature Characteristic1	After standard charging at 20±5℃, laying the battery at 55℃ for 2hour, then discharge at 19A to 10V, record the discharge time	≥80%
Temperature Characteristic2	After standard charging at 20±5℃, laying the battery at -10℃ for 4hour, then discharge at 19A to 10V, record the discharge time	≥60%

6. Mechanical Performance

Item	Condition	Specification
Crush Test	A battery is to be crushed between two flat surfaces. The force for the crushing is to be applied by a hydraulic ram with a 32mm diameter piston. The crushing is to be continued until a pressure reading of 17.2mmPa is reached on the hydraulic ram, applied force of 13kN. Once the maximum pressure has been obtained it is to be released.	No fire, No explosion
Drop Test	The battery has only two axes of symmetry in which case only two directions shall be tested. The battery is to be dropped from a height of 1 meter twice onto concrete ground.	No explosion, No fire, No smoke
Vibration	A full-charged battery is to be subjected to simple harmonic motion with an amplitude of 1.6mm total maximum excursion. The frequency is to be varied at the rate of 1 hertz per minute between 10 and 55 hertz. The cell shall be vibrated for 30 minutes per axis o XYZ axes.	No leakage, No Fire, No explosion

7. Cell Safety Performance

Item	Condition	Specification
Over charge	At 20±5℃, charging battery with constant current 1C to voltage 4V, then with constant voltage 4V till current decline to 0.	No explosion, No fire
Over discharge	At 20±5℃, according to the requirement of the standard of discharge after discharge to termination voltage, 30 m Ω external load discharge within 24 hours.	No explosion, No fire
Short-circuit	At 20±5℃, Standard charge, across the electrodes of the battery with a less than 50 m Ω wire connection, 6 hours	No explosion, No fire The temperature of the surface of the cell are lower than 150℃
Heating	Battery is heated in a circulating air oven at a rate of 5±2℃ per mins to 130℃, an then placed 30 mins at 130℃	No explosion, no fire

8. Delivery Conditon

Approx. 50-70% charged

Shipment voltage: 12.4-13.6V

9. Appearance& Dimension:

Dimension：406*175*220 mm

Warning！

Before the battery needs to be connected in series or in parallel, please confirm details with us.

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 object.

11. Battery operation instruction

11.1 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。

11.2 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,

11.3 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.

11.4 Storing the Batteries

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

11.5 Please do not continuously charge the battery over 8hours.

12. Others

◎The customer is requested to contact GEPCO SOLAR GmbH 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.

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

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