LiFePO4 Rechargeable Battery

Product Specification

Product Name: LiFePO4 Battery Pack

Product Specification: 12.8V40Ah

Registered	Tan Lu
Checked	
Approved	

Customer Approve

Directory

1.Preface

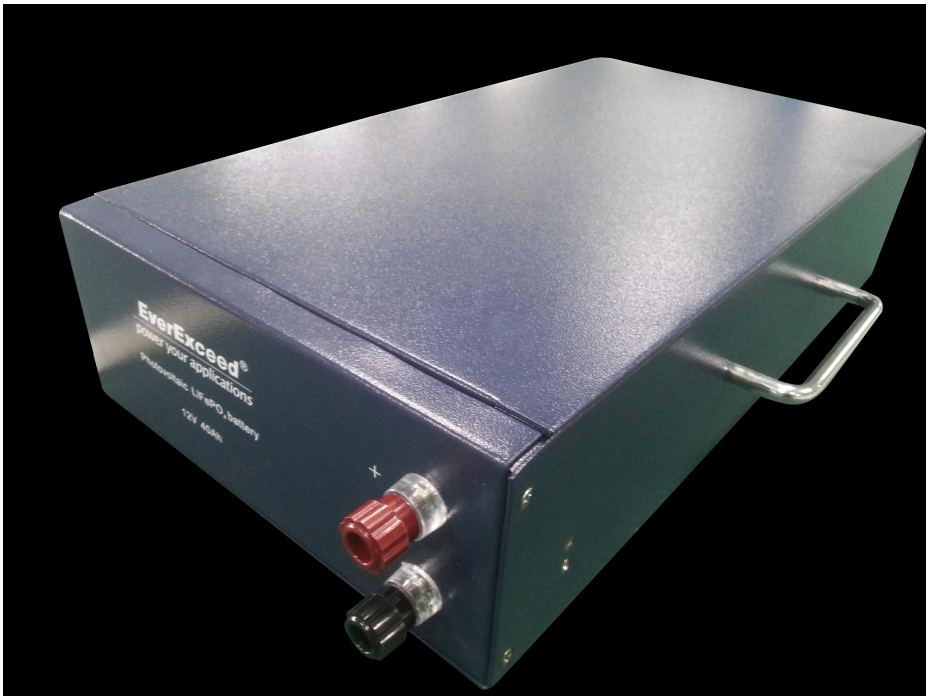
This specification describes the type and size, performance, technical characteristics, warning and caution of the ES-12.8V40Ah LiFePO4 rechargeable pack. The specification only applies to ES-12.8V40Ah LiFePO4 rechargeable pack supplied by Everexceed Industrial CO.,LTD.

2. Product and Model

2.1 Product: LiFePO4 Battery Pack

2.2 Model: ES-12.8V40Ah3（IFP09200328-3.2-40 4S1P）

2.3 Picture And Output Wire



Positive Connection Port	M8 spiral
Negative Connection Port	M8 spiral

3.Battery Pack Specifications

Items	Standard	Comments
Nominal voltage	12.8V	
Typical capacity	40±0.05Ah	At 0.2C discharge rate
Standard continuous discharge current	12A	
Max continuous discharge current	40A	
Discharge cut-off voltage	About 10V	
Charge voltage	14.6±0.005V	Charge mode: CC/CV，Use a constant current, constant voltage(CC/CV) please use special lithium charger.
Charge current	8A	
Max charge current	40A	
Inner resistance	≤35mΩ	Between positive and negative polar
Operation temperature range	Charge	0℃～+55℃
	Discharge	-20℃～+60℃
		When the environment temperature is higher than 45℃，please pay attention to ventilation and heat rejection.
Storage temperature range	0℃～40℃ (Capacity 80%)	Recommended long-term storage temperature is 15~25℃
humidity	45%≤RH≤85%	
Shell material	iron	
Weight	Approx: 7.4±0.1Kg	
Size (L*W*H)	(390±2)mm*(90±1)mm*(215±2)mm	
Protection function	Over charge protection、Over discharge protection、Over current protection、Short circuit protection,capacity LED	

4.PCM Electrical Characteristics（Ta=25℃）

NO.	Item		Standard
1	Voltage	Charge mode	CC/CV
2	Current	Self-discharge current	≤20uA
		Max continuous charge current/discharge current	40A/40A
3	Over charge protection	Over charge protection voltage	3.75±0.03V
		Over charge release voltage	3.34±0.05V
4	Over discharge protection	Over discharge protection voltage	2.40±0.08V
		Over discharge release voltage	2.70±0.10V
5	Over current protection	Over current protection current	80±0.5A
		Over current protection delay	20ms-50ms
		Over current release	Cut off load
6	Short circuit protection	Condition	Automatically recover after 30s
		Short circuit protection Release time	200-500us
		Release condition	Cut off Loading, release automatically
		Output short-circuit protection	300A/500uS
7	Temperature	Working temperature range	-20℃~+60℃
		Storage temperature range	-40℃~+85℃
		Temperature protection	65±5℃

5.Appearance And Delivery Condition

There shall be no such defects as scratch, discoloration, leakage which may adversely affect commercial value of the cell. About 40%~75% charged ,the voltage≧12.8V.(after discharged, use the charger to charge about 6~7hours).

6.Standard Test Conditions

6.1 Environmental Conditions

Unless otherwise specified, all tests stated in this specification are conducted at temperature 25±2℃and humidity 65±20%, air pressure 86kPa～106kPa .

6.2 Measuring Equipment

a)Voltage is measured by D.C. voltmeter which precision is higher than 0.5 grade and self resistance is higher than 1kΩ/V;

b) Current is measured by D.C. meter which precision is higher than 0.5 grade;

c) Temperature is measured by thermometer which has proper measuring range and division value is lower than 0.5℃;

d)The timer used in measuring should be degreed in hour, minute and second, and should have degree of accuracy no more than ±1%.

6.3 Test conditions

The cells to be tested should be new cells and within one month after shipment from our factory and the cells shall not be cycled over five times before the testing. All the tests in this specification shall be conducted in an ambient temperature of 25ºC ±2ºC under a humidity of 65±20%, unless otherwise specified .

7. Characteristics

7.1 Standard charge

Charge the battery with DC stabilized power supply 14.6V, constant-current 0.2C(A) current until current reach to 0.05C（A）.

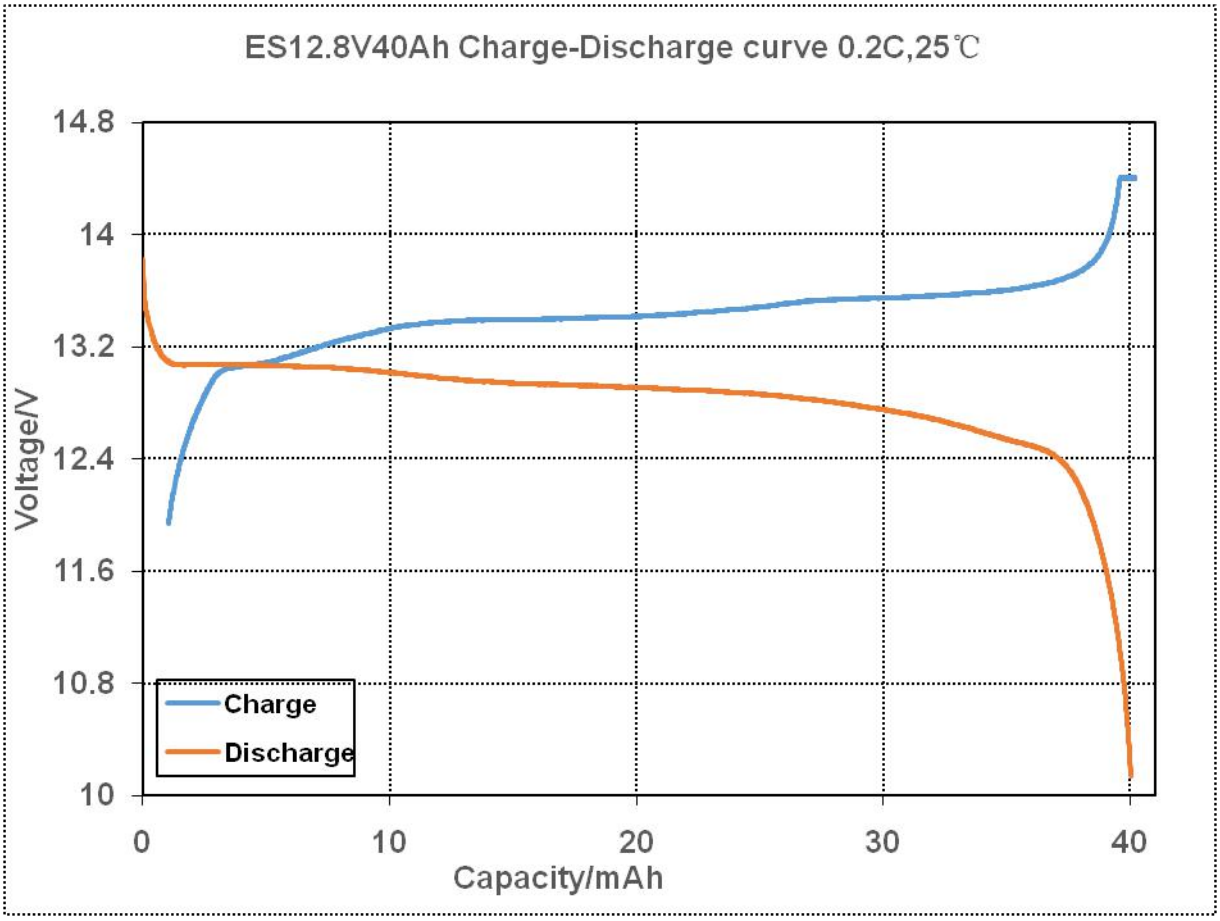
7.2 standard discharge

Discharge the battery at 0.2C(A)to 10V or the protection circuit come to protection, stop.

7.3 Electrical Performance

Test Items	Test Methods	Test Standards
7.3.1 0.2C Discharging Performance	After standard charge, store the battery for 0.5～1hr under 6.1 specified conditions, then discharge at 0.2C to cut-off voltage.	≥100% Nominal capacity
7.3.2 High Temperature Performance	After standard charge, put the cells into 55℃±2℃ high temperature box with constant temperature for 2hrs, then discharging at 0.2C to cut-off voltage. Then take the cell out, stored for 2hrs under 6.1 specified conditions, check the exterior appearance.	≥95% Nominal capacity The battery no explosion, no fire
7.3.3 Charge Retention	After standard charge, store the cells for 28 days under 6.1 specified conditions, then discharge at 0.2C5mA to cut-off voltage.And then charge it by standard charge to full charged,and discharge at 0.2C to 10V.	capacity retention rate≥95% of minimum capacity; Capacity recovered rate≧90% of minimum capacity
7.3.4 Cycle Life	1) standard charge at 0.2C, 2) rest 0.5~1 hr 3) discharge at 0.2C to cut off voltage 4) rest 0.5~1hr repeat the above steps until 2000 cycles.	Capacity retention rate≥80%

8.Characteristic curve



9. Cautions

9.1 Charging current should be less than maximum charge current specified in the Product Specification. Charging with higher current than recommended value may cause damage to cell electrical, mechanical and safety performance and could lead to heat generation or leakage.

9.2 The cell shall be discharged at less than the maximum discharge current specified in the Product Specification. High discharging current may reduce the discharging capacity significantly or cause over-heat.

9.3 It should be noted that the cell would be possible to be at a over-discharged state by its self-discharge characteristics in case the cell is not used for long time. In order to prevent over-discharging, the cell shall be charged periodically to maintain between 13.2V and 13.6V.Over-discharging may causes loss of cell performance, characteristics, or battery functions.

9.4 The storage temperature and humidity of the battery are as below: -10℃~45℃ within one month ，-10℃~35℃ within 2 months，-10℃~25℃ for 3 months and above 3 months .Humidity: 65±20%RH .

9.5 Prohibition of disassembly.

9.6 Do not expose the battery to extreme heat or flame.

9.7 Do not reverse the polarity of the battery pack for any reason.

9.8 Do not immerse the battery pack in water or sea water, or get it wet.

9.9 Use a constant current, constant voltage (CC/CV) lithium-ion (Li+) battery charge controller.

10.Address

If you have any questions, please contact the following address:

ADD: 3/F Section B, Hivac Building, Langshan No.2 Road, North Zone, Science & Technology Park, Nanshan District, Shenzhen, China,518057
TEL: 086-755-21638065
FAX: 086-755-21638069
http://www.everexceed.com