

Product Specification

Prismatic lithium Ion Battery

Model: IFPE100B

Senmarck Energy Limited

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1.Terms and definitions

1.1. Products:

The " product " in this specification refers to IFPE100B rechargeable lithium iron phosphate battery was tested by Jiangsu Feilan Clean Energy Research Institute Co., Ltd.

1.2. Room temperature:

25±2 °C .

1.3. Battery temperature:

The temperature of the positive pole of the battery.

1.4. Rated capacity:

Nominal capacity, expressed by C_{rated}

1.5. Initial capacity:

The capacity (Ah) of a new battery discharged from the factory when it is fully charged at room temperature and discharged to the specified discharge termination condition with a discharge current of $0.5I_1$ is expressed by C_0 .

The I_1 : 1 hour rate discharging current (A), which value is equal to C_{rated} (A).

1.6. Actual capacity:

The value of the capacity released from a fully charged battery cell under specified conditions.

1.7. Working voltage:

Working voltage, also known as discharge voltage or load voltage, refers to the potential difference between the cell positive and negative terminals when the load current is flowing.

1.8. Capacity retention rate:

After a fully charged battery has been stored at a certain temperature for a period of time, the ratio of the discharge capacity of the battery to the initial capacity under the specified discharge conditions.

1.9. Capacity recovery rate:

After a fully charged battery has been stored for a period of time at a certain temperature, it is fully charged and then discharged.

The ratio to the initial capacity.

1.10. State of charge:

The percentage of the actual capacity that can be released by the current battery cell according to the specified discharge conditions. Referred to as SOC .

1.11. Cycle life:

Under the specified charge-discharge termination conditions, charge and discharge with a specific charge-discharge system, the actual capacity of the battery is greater than the number of cycles that can be performed before 80% of the initial capacity .

2.Scope of application

UPS power supply, household energy storage.

3.Product Type

3.1. Product classification:

Rechargeable prismatic lithium iron phosphate battery

3.2. Product model:

IFPE100B

4.Basic performance

project	specification	condition	Remarks
Appearance	No cracks, scratches, deformation, stains, electrolyte leakage, etc.		
Nominal size (Thickness × width × height)	36 × 130 × 215.8		See attached picture for details
Nominal Weight	2.05kg		
Rated Capacity	100Ah		

Nominal Voltage	3.2V		
Operating voltage range	2.5V-3.65V	Room temperature	
AC internal resistance	$\leq 0.8\text{m}\Omega$	SOC40% , AC 1kHz , room temperature	
Energy Density	$\geq 155\text{Wh/kg}$		

5.Charging performance

project	specification	condition	Remarks
Standard charging	$1 / 3I_1$	Room temperature, constant current to constant voltage, cut-off current $0.05I_1$, cut-off voltage 3.65V	Recommended charging method
Rate charging	Sustainable 100A	Room temperature, SOC $< 80\%$	
Low temperature charging	$\leq 0.05I_1$	$-10\text{ }^\circ\text{C}$	
	$\leq 0.1I_1$	$0\text{ }^\circ\text{C}$	
	$\leq 1 / 3I_1$	$10\text{ }^\circ\text{C}$	
High temperature charging	$\leq 1 / 3I_1$	$45\text{ }^\circ\text{C}$	

6.Discharge performance

project	specification	condition	Remarks
Standard discharge capacity	$\geq 100\% C_{\text{Rated}}$	Room temperature, $0.5I_1$, cut-off voltage 2.5V	

Rate discharge	$\geq 97\%C_0$	Room temperature, $1I_1$, cut-off voltage 2.5V	
Low temperature discharge capacity	$\geq 70\%C_0$	-20 °C , $0.1I_1$, cut-off voltage 2.0V	
	$\geq 80\%C_0$	-10 °C , $0.1I_1$, cut-off voltage 2.0V	
	$\geq 90\%C_0$	0 °C , $0.1I_1$, cut-off voltage 2.5V	
High temperature discharge capacity	$\geq 98\%C_0$	45 °C , $0.5I_1$, cut-off voltage 2.5V	
	$\geq 95\%C_0$	55 °C , $0.5I_1$, cut-off voltage 2.5V	

7.Cycle life

project	specification	condition	Remarks
Standard cycle life	≥ 3000 times	Room temperature, $0.5I_1$ charge $1I_1$ discharge	
High temperature cycle life	≥ 1000 times	45 °C , $0.5I_1$ charge $1I_1$ discharge	

8.Storage performance

project	specification	condition	Remarks
Room temperature capacity retention rate	$\geq 95\%$	Room temperature, 28 days	

High temperature capacity retention rate	$\geq 95\%$	55 °C , 7 days	
Room temperature capacity recovery rate	$\geq 97\%$	Room temperature, 28 days	
High temperature capacity recovery rate	$\geq 96\%$	55 °C , 7 days	

9.Safety performance

project	specification	condition	Remarks
overcharge	No fire, no explosion	Refer to Q/ZTT 2235.1-2019	
Resistance to heavy objects	No fire, no explosion	Refer to Q/ZTT 2235.1-2019	
Deep discharge	No fire, no explosion, not low capacity	Refer to Q/ZTT 2235.1-2019	
	At 98%C_0		
Safe charging voltage	The single battery should not leak, smoke, catch fire or explode, and discharge with I_1 (A) discharge current, and the capacity should not be less than 92% C_0	Refer to Q/ZTT 2235.1-2019	
Thermal shock resistance	No fire, no explosion	Refer to Q/ZTT 2235.1-2019	
High temperature storage	No leakage, smoke, fire or explosion	Refer to Q/ZTT 2235.1-2019	

Heating	No part of the explosive battery penetrates the screen, and no part or all of the battery protrudes from the screen	Refer to Q/ZTT 2235.1-2019	
short circuit	No fire, no explosion	Refer to Q/ZTT 2235.1-2019	
Puncture resistance	No fire, no explosion	Refer to Q/ZTT 2235.1-2019	
Anti-extrusion	No fire, no explosion	Refer to Q/ZTT 2235.1-2019	
Anti-low pressure	No leakage, smoke, fire or explosion	Refer to Q/ZTT 2235.1-2019	
Temperature cycle	No leakage, smoke, fire or explosion; The appearance of the single battery has no rupture, no quality loss, and the capacity is not less than 70% C ₀	Refer to Q/ZTT 2235.1-2019	

10. Marking, packaging, transportation and storage

10.1. Logo

There should be a clear barcode on each product.

10.2. Packaging

The product should have outer packaging to ensure that the product is not mechanically damaged during transportation, loading, unloading, and stacking.

10.3. Transportation

10.3.1. Batteries should be packed into boxes for transportation under <60% charged state.

During transportation, violent loading and unloading should be strictly prohibited, severe vibration, impact or squeezing, protection from sun and rain, and no side or upside-down.

10.3.2. Suitable for transportation of vehicles, trains, ships and other means of transportation.

10.3.3. Please refer to MH/T 1020-2018 "Regulations for Air Transport of Lithium Batteries " for air transportation.

10.4. Storage

10.4.1. Products without opening the package should be stored in a clean, dry and ventilated warehouse with an ambient temperature of $-10\text{ }^{\circ}\text{C} \sim 35\text{ }^{\circ}\text{C}$ and a relative humidity of $\leq 75\%$. The warehouse should not contain corrosive gas; the product should be kept away from fire Source and heat source;

10.4.2. During storage, it is forbidden to turn the battery upside down, and avoid mechanical shock and heavy pressure.

10.4.3. The state of charge should be stored at 40% SOC . When the battery is not used for a long time, the battery shall be charged and discharged as a standard maintenance every six months, and the battery shall be stored under 20%-40% charged state.

11.Prohibitions and precautions

- ★ use, you should read the specifications in detail and fully understand the contents of the cautions and prohibitions.
- ★ have been professionally trained and qualified should contact, use and maintain the battery, and take adequate protective measures. Improper use may cause battery performance degradation, failure, or fire or explosion, resulting in personal or property damage.

11.1. Prohibited matters

- ★ not overheat the battery.
 - ★ strictly prohibited to modify or disassemble the battery.
 - ★ strictly forbidden to pierce the battery with a sharp object.
 - ★ strictly forbidden to drop, hit or bend the battery.
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- ★ strictly forbidden to connect the positive and negative poles of the battery directly.
- ★ strictly forbidden to weld the battery pole directly.
- ★ strictly prohibited to mix with other batteries.
- ★ strictly prohibited to use the positive and negative poles upside down.
- ★ charging is strictly prohibited.
- ★ discharge is strictly prohibited.
- ★ strictly forbidden to turn the battery upside down.
- ★ strictly forbidden to put the battery in water or other conductive liquids, or cause condensation on the surface of the battery.
- ★ strictly forbidden to connect the negative pole to the battery case.

11.2. Notes

11.2.1. Notes on charging

- ★ charging current shall not exceed the maximum allowable charging current specified in this specification.
- ★ charging voltage must not exceed the maximum charging voltage specified in this specification.
- ★ battery must be charged within the range of $-10\text{ }^{\circ}\text{C}$ ~ $45\text{ }^{\circ}\text{C}$, and the best charging temperature is $15\text{-}35\text{ }^{\circ}\text{C}$.

11.2.2. Discharge precautions

- ★ discharge current must not exceed the maximum discharge current specified in this specification.
- ★ battery must be discharged within the range of $-20\text{ }^{\circ}\text{C}$ ~ $55\text{ }^{\circ}\text{C}$. The best discharge temperature is recommended to be $15\text{-}35\text{ }^{\circ}\text{C}$.
- ★ matter what discharge mode the battery is in, once the battery temperature exceeds the maximum discharge temperature, the discharge will stop.
- ★ battery should be charged regularly to keep the battery at 20%~40% charged state to prevent over-discharge.

11.3. Other matters

- ★ any matters not mentioned in this specification, please consult our company. When the version of this specification is updated, our company will not give further notice.
- ★ company does not assume any responsibility for accidents caused by using the battery cell outside the conditions stated in this document.
- ★ company does not assume any responsibility for problems caused by improper use of single cells with circuits, battery packs, and chargers.
- ★ assembly process of battery cells after shipment, the defective battery cells caused by processing are not included in the scope of quality assurance.

Attached :Dimensions of single battery

