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Ripu Energy Co., Ltd.

RUIPU ENERGY CO.,LTD.

Product Specification Sheet for Lithium-ion Power Battery CB 7914897EA-120Ah

Authorized strength	Examine and verify	Ratify
Customer receipt:		

Ripu Energy Co., Ltd.

Catalogue

1 Scope of Application

This product specification document specifies the performance requirements, testing methods, transportation and storage requirements, as well as precautions for the CB7914897EA-120Ah lithium-ion battery.

2 Normative Reference Documents

The following documents are essential for the application of this document. For dated references, only the version dated applies to this document. For undated references, their latest version (including all change orders) applies to this document.

GB/T 31484—2015 Requirements and Test Methods for Cycle Life of Power Batteries for Electric Vehicles

GB/T 31485—2015 Safety Requirements and Test Methods for Power Batteries for Electric Vehicles

GB/T 31486—2015 Electrical Performance Requirements and Test Methods for Power Batteries for Electric Vehicles

GB/T 19596 Electric Vehicle Terminology

3 Performance Index

Note: The indicator is specific to new batteries only.

Order number	Project	Specifications	Remarks
3.1	Nominal capacity	120Ah	1C, room temperature
3.2	Nominal voltage	3.2V	
3.3	Operating voltage range	2.5-3.65V	
3.4	Maximum continuous discharge current	≤240A	Typical value = 60A
3.5	Peak discharge current	≤360A	@10s
3.6	Maximum continuous charging current	≤180A	Typical value = 60A
3.7	Peak charging current	≤240A	@10s
3.8	End-use temperature	Charging: 0°C to 55°C Discharge: -20°C to 55°C	
3.9	Storage temperature	-20℃~55℃	
3.10	Battery size	Thickness: 79.0±0.5 mm Width: 148.0±0.5 mm Shoulder height: 97.0±0.5 mm Total height: 102.65±0.5 mm	Packaging without insulation film
3.11	Anode material	Lithium iron phosphate	
3.12	Battery weight	2.4±0.05kg	
3.13	Energy density	160Wh/kg	

3. 14	Standard charging mode (CC&CV)	Under ambient temperature conditions (25 ±2)℃, charging was performed using a constant current followed by constant voltage method. The constant current was set at 1Ii (A), and the constant voltage was maintained at 3.65V. Charging was terminated when the current dropped to 0.05Ii (A) during the constant voltage phase, followed by a 1-hour resting period.	

4 Electrical Properties

4.1 Standard Test Conditions

The battery shall be a new product (stored for less than 1 month after manufacturing) with fewer than 5 cycles. Unless otherwise specified, all test conditions in this specification are as follows:

Temperature: 25±5°C, Humidity: 15%–90% RH, Air pressure: 86 kPa–106 kPa. The room temperature specified in the specification refers to 25±2°C, with an Ii(A) current of 120 A.

4.2 Accuracy of Testing Equipment

(1) Voltage measurement accuracy: Class 0.5 or higher.

(2) Current measurement accuracy: Class 0.5 or higher

(3) Temperature measurement accuracy: ±0.5℃

(4) Time measurement accuracy: ±0.1%.

(5) Dimension measurement accuracy: ±0.1%.

4.3 Testing Process

Order number	Project	Testing procedure	Standard
4. 5. 1	Room temperature discharge capacity (initial capacity)	1) Test temperature: 25±2°C. 2) Charge the battery to full according to Section 3.15. 3) Discharge the battery at a current of 1 A until reaching 2.5 V, and record the discharge capacity (Ah).	110%*rated capacity ≥ discharge capacity ≥ 100%*rated capacity
4. 5. 2	Room temperature rate charging	1) Test temperature: 25±2°C. 2) Discharge the battery at 1C (A) rate to 2.5V and allow it to rest for 1 hour. 3) Charge the battery at a current of 1.5A until reaching 3.65V, with a total charging time not exceeding 30 minutes, followed by a 1-hour rest period. 4) Discharge the battery at a current of 1A to 2.5V and record the discharge capacity (Ah).	Discharge capacity ≥ 85%* initial capacity

4. 5. 3	Room temperature rate discharge	1) Test temperature: 25±2°C. 2) Charge the battery to full according to Section 3.15. 3) Discharge the battery at a current of 2A until reaching 2.5V, and record the discharge capacity (Ah).	Discharge capacity ≥ 90%*initial capacity
4. 5. 4	High temperature discharge	1) Charge the battery to full according to Section 3.15 2) The battery was left at 55±2°C for 5 hours. 3) The battery was discharged at a current of 1 A at 55±2°C until reaching 2.5 V, with the discharge capacity (Ah) recorded. 4) The battery was left at 25±5℃ for 12 hours and its appearance was inspected.	No deformation, swelling, or other abnormalities; discharge capacity ≥95%* initial capacity
4. 5. 5	Cryogenic discharge	1) Charge the battery to full according to Section 3.15. 2) The battery was stored at-20±2°C for 24 hours. 3) The battery was discharged at a current of 1 A at-20 ± 2°C until reaching 2.0 V, with the discharge capacity (Ah) recorded. 4) The battery was left at 25±5℃ for 12 hours and its appearance was inspected.	No deformation, swelling, or other abnormalities; discharge capacity ≥70%* initial capacity
4. 5. 6	Cycle life	1) Test temperature: 25±2°C. 2) Charging was performed using a pre-constant current followed by constant voltage method, with a constant current of 1.0 Li(A) and a constant voltage of 3.65 V. Charging was terminated when the current dropped to 0.0511 A during the constant voltage phase, followed by a 30-minute rest period. 3) Discharge the battery at a current of 10 A to 2.5 V and allow it to rest for 30 minutes. 4) Repeat steps 2) and 3) until the battery capacity drops below 80% of the initial capacity, and record the number of cycles.	Cycle life ≥3000 cycles
4. 5. 7	Storage and recovery at room temperature	1) Test temperature: 25±2°C. 2) Charge the battery to full according to Section 3.15. 3) The batteries were stored at room temperature for 28 days. 4) Discharge the battery at a current of 1A until reaching 2.5V, and record the remaining capacity in Ah. 5) Charge the battery to full according to Section 3.15. 6) Discharge the battery at a current of 1 A until reaching 2.5 V, and record the recovery capacity (Ah).	No deformation, swelling, or other abnormalities; residual volume ≥ 90%*of initial volume; recovery volume ≥ 94%*of initial volume
4. 5. 8	High-temperature storage and recovery	1) Charge the battery to full according to Section 3.15. 2) The batteries were stored at 55±2℃ for 7 days. 3) After removing the battery and allowing it to rest at 25±2°C for 5 hours, discharge the battery at a current of 1A until reaching 2.5V, and record the remaining capacity (Ah). 4) Charge the battery to full according to Section 3.15. 5) Discharge the battery at a current of 1A to 2.5V and record the recovery capacity (Ah).	No deformation, expansion, or other abnormalities; residual volume ≥ 90%*of initial volume; recovery volume ≥ 94%*of initial volume

5 Safety Performance

Order number	Project	Testing procedure	Standard
5. 1	Temperature cycle	1) Charge the battery to full according to Section 3.15. 2) Place the battery into the oven. The oven temperature should be set according to Table 5.1 and Figure. 5.1 Changes occurred 5 times. 3) The battery was observed for 1 hour.	No ignition, explosion, or leakage Reveal
5. 2	Heat endurance	1) Charge the battery to full according to Section 3.15. 2) The battery was placed in an oven. The temperature of the battery increased at a rate of 5℃ / min to reach 130 ± 2℃ and maintained for 30 minutes. 3) The battery was observed for 1 hour.	No ignition or explosion
5. 3	Decline	1) Charge the battery to full according to Section 3.15. 2) Drop the battery's positive and negative terminals downward from a height of 1.5 meters onto a concrete surface. 3) The battery was observed for 1 hour.	No ignition, explosion, or leakage Reveal
5. 4	Vibrate	1) Charge the battery to full according to Section 3.15. 2) Secure the battery to the vibration test bench and perform linear frequency-sweep vibration testing under the following conditions: Discharge current: 1/3Ii (A) Vibration direction: Up and down single vibration Vibration frequency: 10–55 Hz Maximum acceleration: 30m/s ² Scan cycle: 10 times Vibration time: 3h 3) Battery phenomena were observed during the testing process.	No current fluctuation, abnormal voltage; No deformation, leakage, or other abnormalities;
5. 5	Sea immersion	1) Charge the battery to full according to Section 3.15. 2) The battery was immersed in a 3.5% NaCl solution for 2 hours. 3) The water depth should completely submerge the battery.	No ignition or explosion
5. 6	Cyclone	1) Test temperature: 25±2°C. 2) Charge the battery to full according to Section 3.15. 3) Place the battery in a low-pressure chamber, maintaining the pressure at 11.6 kPa, static for 6 hours. 4) The battery was observed for 1 hour.	No ignition, explosion or leakage
5. 7	Overcharge	1) Test temperature: 25±2°C. 2) Charge the battery to full according to Section 3.15. 3) Charge the battery at a current of 1 A for 1 hour or until the voltage reaches 5.5 V. 4) The battery was observed for 1 hour.	No ignition or explosion
5. 8	Overfall	1) Test temperature: 25±2°C. 2) Charge the battery to full according to Section 3.15. 3) The battery was discharged at a current of 1A for 90 minutes. 4) The battery was observed for 1 hour.	No ignition, explosion or leakage

5. 9	Short	1) Test temperature: 25±2°C. 2) Charge the battery to full according to Section 3.15. 3) Apply an external short circuit to the battery for 10 minutes, ensuring the resistance of the external circuit is ≤5 mΩ. 4) The battery was observed for 1 hour.	No ignition or explosion

Table 5.1 Changes in Time and Temperature During Temperature Cycling

Temperature (℃)	Interval (min)	Cumulative time (min)	Temperature change rate (℃/min)
25	0	0	0
-40	60	60	13/12
-40	90	150	0
25	60	210	13/12
85	90	300	2/3
85	110	410	0
25	70	480	6/7

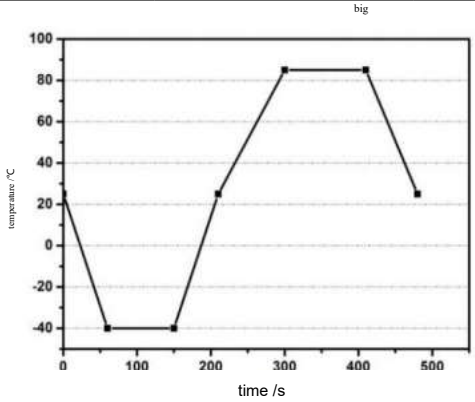


Figure 5.1 Temperature-Time Curve During Temperature Cycling

6 Transportation and Storage

6.1 Transport

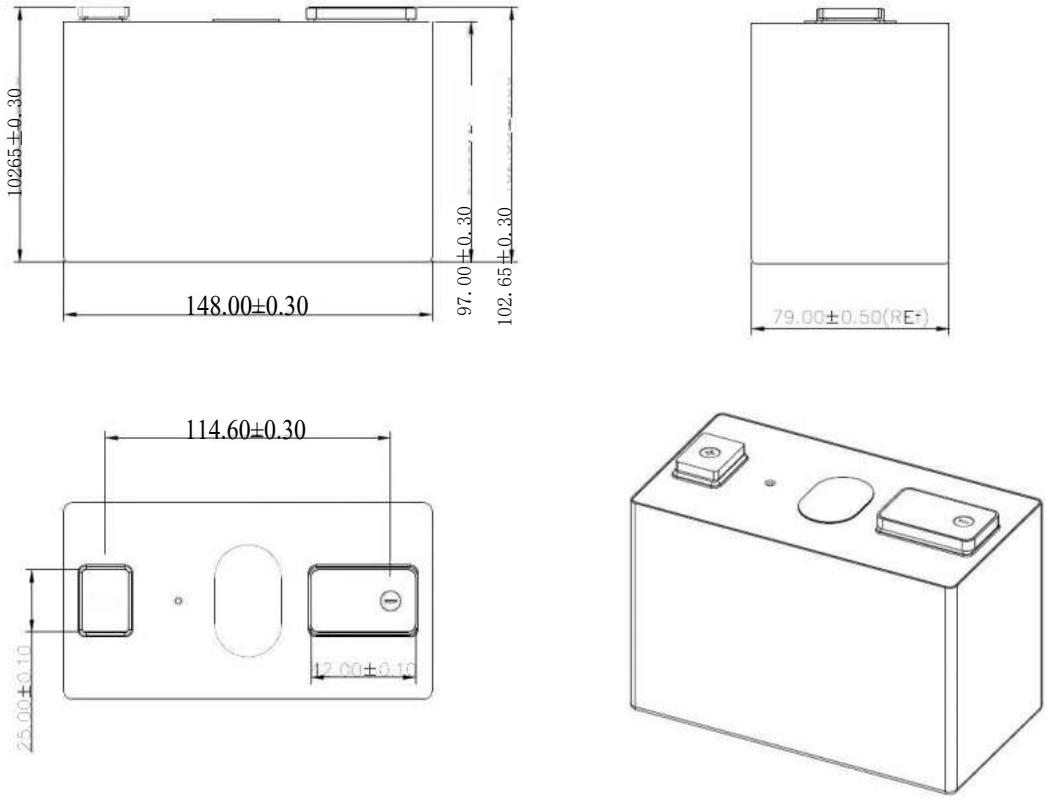
The appropriate packaging method for battery packs should be selected based on the transportation destination and mode of transport. During transportation, vigorous vibrations, external impacts or compression must be avoided, and exposure to sunlight or rain should be prevented. Vehicles such as trucks, trains, ships, or aircraft may be utilized for transportation. Throughout the transport process, a battery capacity of 10-30% should be maintained.

6.2 Memory

Batteries should be stored under conditions permitting ambient temperatures of-20°C to 55°C, with recommended storage temperatures ranging from-1 0 °C to 40°C and relative humidity levels between 1 0 % RH and 90% RH. Batteries must be protected from exposure to corrosive substances or magnetic environments. They should be kept in clean, dry, and well-ventilated areas, away from ignition sources and heat sources. When not in use, batteries should be stored continuously.

It is recommended not to exceed 3 months.

7 Outline Dimension



8 Quality Assurance

The shelf life of batteries is determined by commercial contracts. Within this period, if battery issues arise due to improper usage by users rather than manufacturing process or quality control issues from the manufacturer, Ruipu Energy Co., Ltd. may provide technical guidance but does not guarantee free replacement services.

Ripu Energy Co., Ltd. shall not be held liable for any issues or safety incidents arising from the following circumstances:

1) Problems and safety incidents resulting from non-compliance with safety usage guidelines;

2) Defective batteries produced by users during battery assembly after shipment;

3) Problems arising from the combined use of batteries with circuits, battery packs, and chargers.

For safety considerations, please consult Ruipu Energy Co., Ltd. regarding special applications such as ancillary equipment design, lithium-ion battery system protection circuits, or high-current scenarios.

9 Safety Guidelines

To prevent battery damage or personal injury caused by the misuse of prismatic lithium-ion battery modules, please carefully read the following safety guidelines before using prismatic lithium-ion batteries:

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1. Incorrect use and storage of batteries pose risks of fire, explosion, and burns. Do not disassemble, crush, incinerate, heat, or dispose of batteries in open flames.

Keep batteries out of reach of children and do not remove the original packaging before use. Dispose of used batteries in accordance with local recycling or waste regulations.

If battery replacement is required, batteries from the same manufacturer should be used, as batteries from other manufacturers may pose risks of fire and explosion.

Never immerse batteries in water or allow them to become wet.

Never allow the battery's positive and negative terminals to contact the metal casing simultaneously.

Never short-circuit, overcharge, or over-discharge the battery;

Never use or store batteries near heat sources (such as fire or heaters);

1. Do not reverse the polarity of the battery;

Never store batteries with coins, metal jewelry or other metallic objects;

Never use nails or other sharp objects to puncture the battery casing, and prohibit hammering or stepping on the battery.

1. Do not weld batteries directly;

Do not disassemble or modify the battery in any way without authorization;

Avoid impact, throwing, or subjecting the battery to mechanical vibration and natural drop.

Never mix lithium-ion batteries of different types or brands.

Do not connect the negative electrode column to the housing (positive polarity).

1. If the battery emits an odor, generates heat, deforms, changes color, or exhibits any other abnormal phenomena, it must not be used and should be removed from the usage environment.

If a battery catches fire, extinguish it using dry powder, foam extinguisher, or sand, and remove it from the area of use.

10 Shipping Status

Unless otherwise specified by the customer, batteries come with approximately 10-30% battery capacity at the time of shipment.

11 Manufacturer Information

Manufacturer: Ruipu Energy Co., Ltd.

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