Sodium Battery Dry Cell Product Specification

Product Model: CU-PO-S1-4H0111

Version: V1.0

Release Date: 2025-09-15

1. Basic Product Information

Item	Specification
Cell Model	508764
Nominal Voltage	3.4V
Nominal Capacity	≥1150mAh (0.2C)
Dimensions (L × W)	140mm × 110mm
Electrochemical System	PB/HC
Active Material Ratio	PB 92.0% / HC N/A
Coating Density (mg/cm^2)	PB 12.40 / HC N/A
Electrode Compaction Density (g/cc)	PB 1.40 / HC N/A
Cell Structure	Stacked
Recommended Electrolyte Filling Amount	7.2–9.6g
Recommended Electrolyte	KLD-NF96F

2. Charge and Discharge Parameters

Charge Voltage: 3.65 V

Standard Charge Current: 1.0C

Discharge Cut-off Voltage: 2.00 V

Standard Discharge Current: 1.0C

3. Environmental Adaptability

Charging Temperature: 0°C ~ 45°C

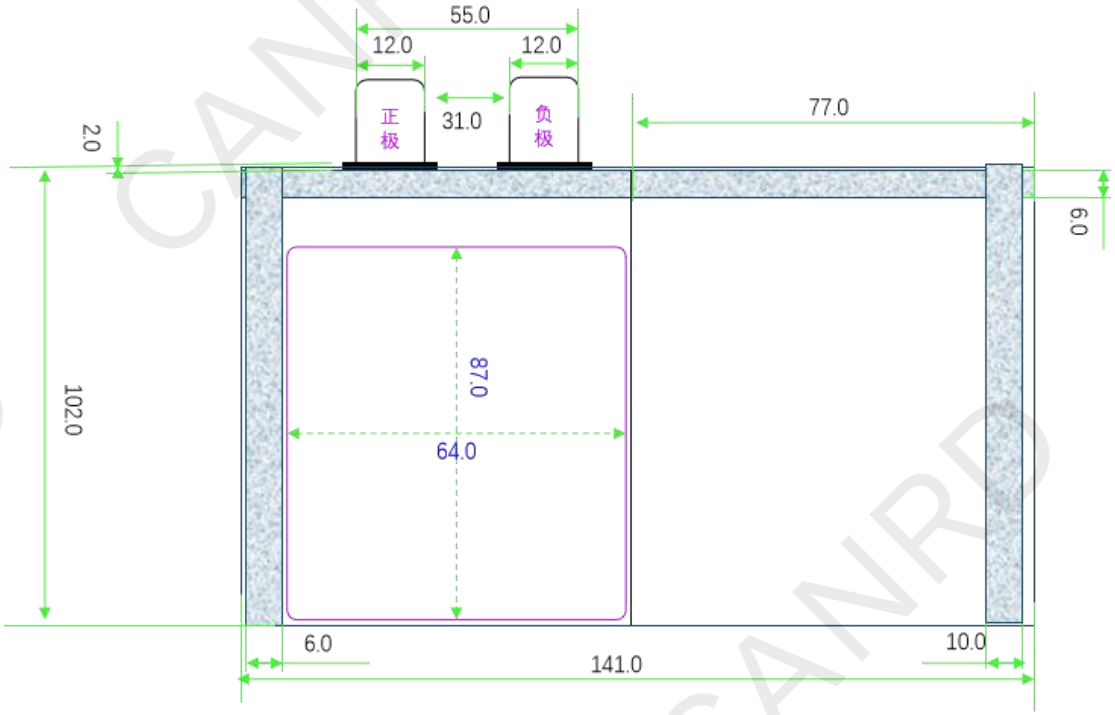
Discharging Temperature: -20°C ~ 45°C

Storage Temperature: 25°C (Recommended)

Relative Humidity: ≤85% RH (Non-condensing)

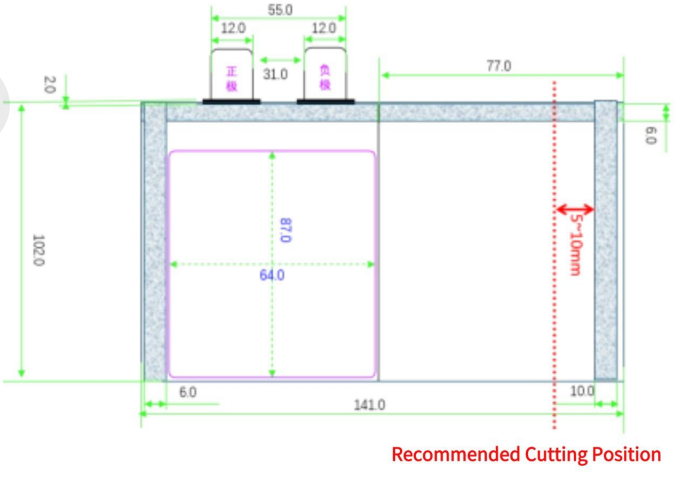
4. Illustrations

Refer to the original drawing for dimensions and tab positions.



5. Post-Processing Procedure for Dry Cell

The following operating instructions **use manual electrolyte injection as an example and must be carried out in a dry room or glove box.** The cell orientation shown in the figure below is regarded as the front side of the cell.



1) Inspection: Before operation,

visually inspect the entire cell for any abnormalities, such as broken tabs, air leakage, or damage to the aluminum-plastic pouch.

2) Creating the Electrolyte Injection Port: Cut an electrolyte injection port at a position 5–10 mm away from the edge of the gas bag.

Note: It is strongly recommended to retain part of the gas bag during the first electrolyte injection.

3) Electrolyte Injection: Using the figure on the right as a reference, rotate the cell 90° counterclockwise so that the cut gas bag opening faces upward (a battery holder may be used for assistance) and place the cell vertically. Then place the cell on a balance and tare it to **zero**. Use a pipette or disposable dropper to inject an appropriate amount of electrolyte through the injection port.

4) Vacuum Resting: Place the cell into a vacuum chamber, apply a vacuum of ≤ -85 kPa, and leave it for 3 minutes.

5) Vacuum Pre-Sealing: Vacuum seal the cell under a vacuum condition of ≤ -85 kPa.

6) Open-Circuit Voltage Measurement After Electrolyte Injection: Measure the open-circuit voltage (OCV) after electrolyte injection. Before any charge/discharge process, the OCV is approximately 0 V. Depending on the electrochemical system, the voltage may be positive or negative.

7) Resting: It is recommended to rest the cell for 48 hours at room temperature or 24 hours at 45°C. Depending on cell size, electrolyte wetting performance, and electrolyte filling amount, customers may reasonably adjust the temperature and duration according to actual requirements.

8) Formation and Capacity Grading After Resting: For the recommended formation and capacity grading procedure (initial charge/discharge activation), please refer to the following section.

6. Recommended Formation and Capacity Grading Procedure

6.1 With Hot-Press Formation and Capacity Grading Conditions

Formation Conditions: 45°C, 0.9 MPa

1) Rest for 60 minutes (until the cell temperature reaches 45°C).

2) Charge at 0.05C constant current for 8 hours.

3) Rest for 1 minute.

4) Charge at 0.1C constant current for 3 hours.

After the cell body cools down to 25°C, perform degassing and secondary sealing. **It is recommended not to completely remove the gas bag and to retain a portion of it**.

Capacity Grading Conditions: 25°C, 0.9 MPa

1) Rest for 3 minutes.

2) Charge using a 0.2C constant current–constant voltage (CC-CV) method to 3.65 V, with a cutoff current of 0.05C.

3) Rest for 3 minutes.

4) Discharge at 0.2C constant current to 2.00 V.

(Complete the first charge/discharge cycle and calculate the initial coulombic efficiency.)

6.2 Without Hot-Press Formation and Capacity Grading Conditions

Neware Test System Conditions: 25°C, 0.2 MPa

1) Rest for 3 minutes.

2) Charge at 0.05C constant current to 3.65 V.

3) Rest for 3 minutes.

4) Discharge at 0.2C constant current to 2.00 V.

(Complete the first charge/discharge cycle and calculate the initial coulombic efficiency.)

6.3 Notes

If the cell needs to remain in a **pending-test** condition for an extended period after capacity grading, it is recommended to perform an additional half-charge cycle after the capacity grading process.

Charge/Discharge Curve and Cycle Performance

The original specification includes a charge/discharge curve for a Prussian Blue soft-pack cell (~1.2 Ah) and a room-temperature cycling performance chart showing capacity retention over cycling.