Specification

Product name: RYO 18V li-ion battery	**Product model:IP-LI-RY1850**
File number:IP-LI-RY1850	**File version:**1.0
Scope of Application: This product specification applies to the RYO 18V 5.0Ah li-ion battery. **Applicable models: ZRP813, P104, P105, P102, P103, P107, P108**	

Revision Record

Version number	Revision content	Revision Date	Expurgator
1.0	Editio princeps	2026-5-11	Yang Hao

Department responsible for drafting: Engineering Department		Despatch department： ☑quality department ☑PE Section ☑Production Department ☑business department					
Prepare	Yang Hao	Proofread		Examine and verify		Date	2025-6-30

Catalogue

I. Technical Specifications

Order number	Project	Specification/Range	Remarks
1.	Cell type	Li-ion 18650 power-type battery	5S2P
2.	Cell specifications	18650-2500mAh	
3.	Nominal voltage	18V	5 S
4.	Nominal capacity	5.0Ah	2 P
5.	Charging Method	CC/CV	
6.	Charging Limit Voltage	21V	
7.	Standard charging current	1.0A	0.2C
8.	Fast charging current	2.5A	
9.	Maximum charging current	5A	Constant-current charging
10.	Internal resistance	≤100mΩ	Exchange Test Method
11.	Standard discharge current	0.6A	0.2C
12.	High-rate discharge current	10A	
13.	Maximum discharge current	30A	Continuous discharge
14.		50A	Pulse discharge for 5 seconds
15.	Final discharging voltage	13.5V	
16.	Defencive function	Overcharge Protection	4.22 V ± 0.025 V (charger protection)
17.		Over-discharge protection	2.70 V ± 0.025 V (Tool Protection)
18.		Temperature detection method	NTC
19.		Overcurrent protection	50A
20.	Quiescent dissipation	＜50uA	At no load
21.	Work environment	Charging: 0–40°C Discharge: -20～+40°C Maximum relative humidity: 85%	
22.	Cycle life	≥300 cycles (1C charging, 5C discharging)	Discharge capacity ≥80%

II. Performance Testing Methods and Requirements

Order number	Surveillance project	Testing conditions	Ask
1.	Surface	Visualization	The outer shell surface shall be smooth without scratches, burrs, or other mechanical damages; exposed metal parts must not exhibit oxidation, and the adhesive shell must remain undeformed.
2.	Nominal capacity	Environmental temperature: 20±5°C 1) Standard charging method: Charge at 0.2C until 21V, then maintain a constant voltage of 21V with a current below 0.01C to complete charging. Leave the device undisturbed for 30 minutes after charging. 2) Discharge at a constant current of 0.2C to 13.5 V.	Discharge capacity ≥ 90% of nominal capacity
3.	Charge retention capability	At an ambient temperature of 20°C ±5°C, the device was stored for 30 days after standard charging, followed by constant-current discharge at 1 C to 13.5 V.	≥70% of the nominal capacity
4.	Transmission Voltage	Before shipment, the product is tested with a voltmeter to measure the voltage across its positive and negative terminals.	≥18V ≤21V
5.	High-temperature resistance	At an ambient temperature of 40°C, charge the battery fully at 0.2C, let it stand for 30 minutes, then discharge it at a constant current of 1C until reaching 13.5V.	≥80% of the nominal capacity
6.	Low-temperature resistance	Under an ambient temperature of 0°C, charge the battery to full capacity at 0.2C and leave it undisturbed for 30 minutes. Then place the battery in an ambient environment at-20°C and discharge it at a constant current of 1C until reaching 13.5 V.	≥65% of the nominal capacity
7.	Vibration resistance performance	At room temperature, place the fully charged battery on the vibration platform and vibrate it for 30 minutes according to the specified parameters: Displacement amplitude: 0.38 mm (10–30 Hz); 0.19 mm (30–55 Hz) Frequency: 10–55 Hz (1 octave per minute); Directions: X, Y. Inspect the battery's appearance and functionality after testing.	The battery should exhibit no visible damage, show no liquid leakage, emit no smoke, ignite, or explode.
8.	Cycle life	At a temperature of 20±5°C, charge at a constant current of 3 A to 21 V, then charge at a constant voltage of 21 V until the charging current reaches 30 mA. Allow it to rest for 5 minutes, then discharge at a constant current of 15 A to 13.75 V and let it rest for 60 minutes. Repeat these steps until the discharged capacity reaches 80% of the initial capacity.	Discharge capacity (300 cycles) ≥80%

III Product diagram (for reference)

IV. Storage Requirements

1) Store the battery in a cool, dry place. The recommended storage temperature range is: -10°C to +35°C.

2) During battery storage, it must be charged every three months to prevent damage caused by over-discharge.

V. Precautions

1) Anti-polar charging is prohibited.

2) Do not burn or damage the battery, as this may cause it to explode or release harmful gases.

3) Discontinue use if murmurs, elevated temperature, or leakage occurs.

4) When power is insufficient, discontinue use to prevent over-discharge and battery damage.

5) Do not place the battery in water.

6) Do not attempt to disassemble, press, or impact the battery, as this may cause excessive heating or fire.

7) Keep out of reach of children.

8) Short circuits, overcharging, or improper charging methods can damage the battery.

9) Use the appropriate charger to charge the battery.