

Specification

Product name: DE 20V li-ion battery	Product model: IP-LI-DE2050
File number: IP-LI-DE2050	File version: 1.1

Scope of Application:This product specification applies to DE20V 5.0Ah li-ion batteries.

Applicable models: DCB180, DCB200, DCB204, DCB205

Revision Record

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

Department in charge: Development Department

Despatch department : quality department PE Section Production Department business department

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I. Technical Specifications

Order number	Project	Specification/Range	Remarks
1.	Cell type	Li-ion 18650 power-type battery	5S2P
2.	Cell specifications	18650-2500mAh (10C)	
3.	Nominal voltage	20V	
4.	Nominal capacity	5.0Ah	
5.	Charging Method	CC/CV	
6.	Charging Voltage Limit	21V	
7.	Standard charging current	1000mA	
8.	Fast charging current	2.5A	
9.	Maximum charging current	5A	Constant-current charging
10.	Internal resistance	$\leq 100\text{m}\Omega$	Exchange Test Method
11.	Standard discharge current	1000mA	
12.	High-rate discharge	10A	
13.	Maximum discharge current	20A	Continuous discharge
14.		30A	Pulse discharge for 5 seconds
15.	Final discharging voltage	13.75V	
16.	Defensive function	Overcharge Protection	4.250 V \pm 0.025 V (with charger)
17.		Over-discharge protection	2.70 V \pm 0.08 V (with tools)
18.		Temperature detection method	NTC
19.		Short-circuit protection	Not have
20.	Quiescent dissipation	<50uA	At no load
21.	Work environment	Charging: 0-40°C Discharge: -10 to +40°C Maximum relative humidity: 85%	
22.	Cycle life	≥ 300 cycles (1C charging, 5C discharging)	Discharge capacity $\geq 80\%$

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	<p>Environmental temperature: 20±5°C</p> <p>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; allow the battery to rest for 30 minutes after charging.</p> <p>2) Discharge at a constant current of 0.2 C to 13.75 V.</p>	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 1C to 13.75 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 for 30 minutes, then discharge it at a constant current of 1C to 13.75 V.	≥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 13.75 V.	≥65% of the nominal capacity
7.	Vibration resistance performance	<p>At room temperature, place the fully charged battery on a vibration platform and vibrate it for 30 minutes according to the specified parameters:</p> <p>Displacement amplitude: 0.38 mm (10–30 Hz); 0.19 mm (30–55 Hz)</p> <p>Frequency: 10–55 Hz (1 octave per minute); Directions: X, Y. Inspect the battery's appearance and functionality after testing.</p>	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 $+35^{\circ}\text{C}$.
- 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 all damage the battery.
- 9) Use the appropriate charger to charge the battery.