Customer:_____

LiNiCoMnO2 Battery

Specification

MODEL:INM18.5-26E2 (18.5V2.6AH)

Prepared By/Date	Checked By/Date	Approved By/Date

Customer Approval	**Signature/Date**
	Company Name
	Company Stamp

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Amendment Records				
Edition	Description	Prepared by	Approved by	Date
A0	First Edition	nancy		

1 · Scope

This specification is applied to the LiNiCoMnO2 battery pack manufactured by **Shenzhen Huarui Xinchuang Technology Co.,Ltd**

◆ Product Specification

Table 1

No.	Item	General Parameter	Remark
1	Rated Capacity	2.6Ah	Standard discharge（0.5 C_5）after standard charge（0.5 C_5 ）
2	Minimal Rated Capacity	2.5Ah	
3	Nominal Voltage	18.5V	
4	Cycle Life	Higher than 60% of the Initial Capacity of the Cells	**2.** Charge: CC@0.5C to 21V, then CV till current to 0.05C **3.** Rest: 30min. **4.** Discharge: 0.5C to 15V **5.** Temperature:20±5℃ **6.** Carry out 500cycles
5	Discharge cut-off voltage	15V	15V is recommended
6	Charging cut-off voltage	21V	
7	Cell and assembly method	INR18650EC-2600mAh cell	5S1P
8	Housing material	PVC	Blue

Continuous the table 1

No.	Item	General Parameter	Remark
9	Standard charge	0.5C constant current(CC) charge to 21V,then constant voltage （ CC ） 21V charge till charge current decline to ≤0.05C	Charge time : Approx 4h
10	Standard discharge	Constant current 0.5C Cut-off voltage 15V	
11	Maximum Charge Current	3A	
12	Continuous Discharge Current	5A	
13	Operation Temperature Range	Charge: 0~45℃	60±25%R.H.
		Discharge: -20~60℃	
14	Storage Temperature Range	Less than 1 year : 0~25℃	60±25%R.H. at the shipment state
		Less than 3 months:-5~35℃	
15	Weight	Approx: 300g	
16	Max. Dimensions	Length: 92mm	
		Width: 70mm	
		Thickness: 20mm	

◆ Performance And Test Conditions

- Standard Test Conditions

  Test should be conducted with new batteries within one week after shipment from our factory and the batteries shall not be cycled more than five times before the test. Unless otherwise specified, test and measurement shall be done under temperature of 20±5℃ and relative humidity of 45~85%. If it is judged that the test results are not affected by such conditions, the tests may be conducted at temperature 15~30℃ and humidity 25~85%RH.

- Measuring Instrument or Apparatus
  - Dimension Measuring Instrument

    The dimension measurement shall be implemented by instruments with equal or more precision scale of 0.01mm.
  - Voltmeter

    Standard class specified in the national standard or more sensitive class having inner impedance more than 10kΩ/V
  - Ammeter

    Standard class specified in the national standard or more sensitive class. Total external resistance including ammeter and wire is less than 0.01Ω.
  - Impedance Meter

    Impedance shall be measured by a sinusoidal alternating current method (1kHz LCR meter).

- Standard Charge/Discharge
  - Standard Charge : 0.5C

    Charging shall consist of charging at a 0.5C constant current rate until the battery reaches 21V. The battery shall then be charged at constant voltage of 21V volts while tapering the charge current. Charging shall be terminated when the charging current has tapered to 0.05 C_5A. Charge time: Approx 4h, The battery shall demonstrate no permanent degradation when charged between 0 ℃ and 45 ℃.

- Standard Discharge : 0.5C

Battery shall be discharged at a constant current of 0.5C to 15V @ 20º ± 5C

- If no otherwise specified, the rest time between charging and discharging is 30min.
- Appearance

There shall be no such defect as crack, rust, leakage, which may adversely affect commercial value of battery.

◆ Handling of battery

- Prohibition short circuit

Never short circuit battery. It generates very high current which causes heating of the battery and may cause electrolyte leakage, gassing or explosion that is very dangerous.

The poles may be easily short-circuited by putting them on conductive surface.

Such outer short circuit may lead to heat generation and damage of the battery.

An appropriate circuitry with PCM shall be employed to protect accidental short circuit of the battery pack.

4.2.Mechanical shock

Falling, hitting, bending, etc. may cause degradation of battery characteristics.

◆ Others

Prevention of short circuit within a battery pack

Enough insulation layers between wiring and the cells shall be used to maintain extra safety protection.

The battery pack shall be structured with no short circuit internally, which may cause generation of smoke or firing.

◆ Period of Warranty

The period of warranty is 12 months from the date of shipment. **Huarui Xinchuang** guarantees to give a replacement in case of battery with defects proven due to manufacturing process instead of the customer abuse and misuse.

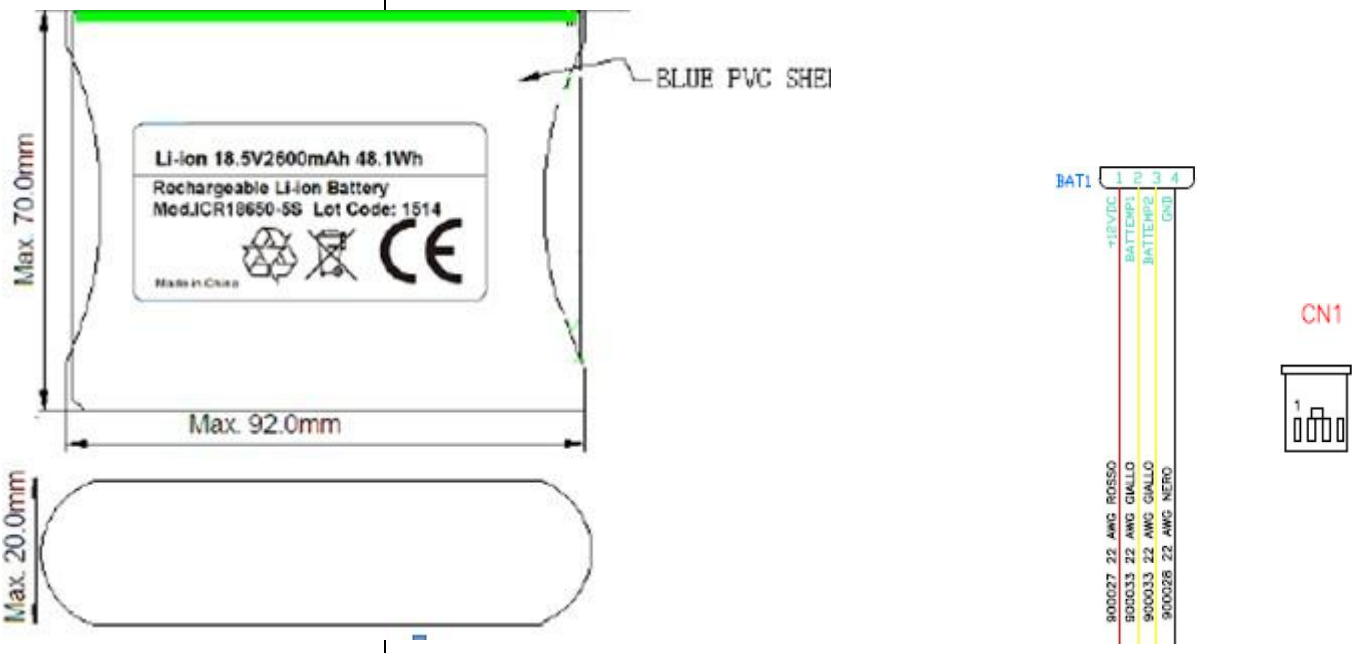
◆ Storing the Batteries

The batteries should be stored at room temperature, charged to about 30% to 50% of capacity.
We recommend that batteries be charged about once per three months to prevent over-discharge.

◆Other Chemical Reaction

Because batteries utilize a chemical reaction, battery performance will deteriorate over time even if stored for a long period of time without being used. In addition, if the various usage conditions such as charge, discharge, ambient temperature, etc. are not maintained within the specified ranges the life expectancy of the battery may be shortened or the device in which the battery is used may be damaged by electrolyte leakage. If the batteries cannot maintain a charge for long periods of time, even when they are charged correctly, this may indicate it is time to change the battery.

◆ Photo:



Wiring: AWG 22#, 180±5mm; with connector-TYCO280359/280708-2, (1-P+,2-NTC-10k, 3-NTC-10k, 4-P-)

◆ Any other items which are not covered in this specification shall be agreed by both parties.

◆ PCM specification

Item	Content	Criterion
Voltage	Charging voltage	DC:21V CC/CV
	Balance voltage for single cell	4.20±0.025V
Current	Balance current for single cell	42±10mA
	Low Current consumption	≤50uA
	Max continues charge current	5A
	Max continues discharge current	5A
Over charge Protection	Over charge detection voltage	4.25±0.025V
	Over charge detection delay time	≤1.5S
	Over charge release voltage	4.10±0.05V
Over discharge protection	Over discharge detection voltage	2.8±0.08V
	Over discharge detection delay time	≤150mS
	Over discharge release voltage	3.0±0.10V
Over current protection	Over current detection voltage	0.10±0.015V
	Over current detection current	20±2A
	Detection delay time	≤20mS
Short protection	Detection delay time	≤540uS
	Detection condition	3.Exterior short circuit &10AH/10C&25℃
	Release condition	Cut short circuit
Interior resistance	Main loop electrify resistance	≤50mΩ
Operating temperature	Operating temperature range	-40~+85℃
Storage temperature	Storage temperature range	-40~+125℃

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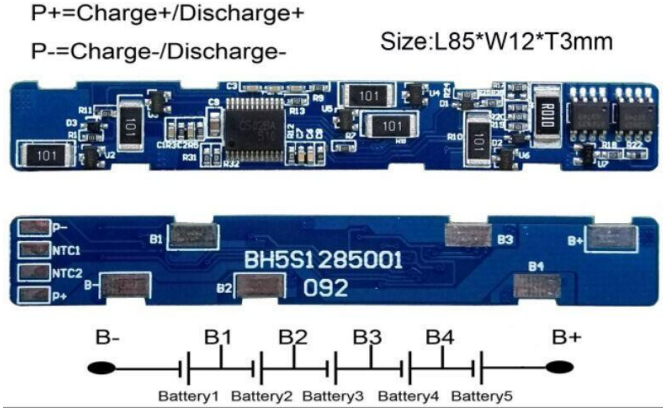

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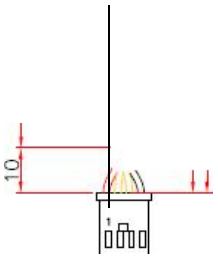

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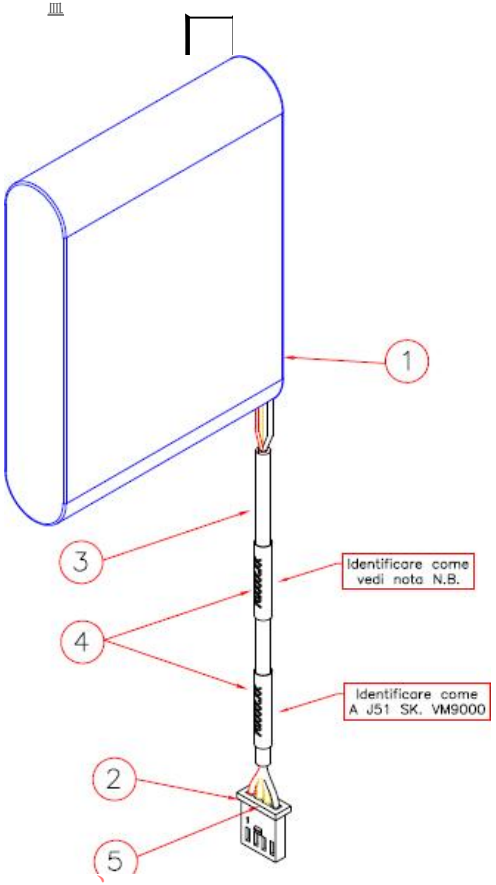

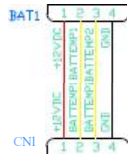

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