



Shenzhen Huarui Xinchuang Technology Co.,Ltd

File No.: Version: A1

INM11-26E2 (11.1V2.6AH) Specification

Customer: \_\_\_\_\_

# LiNiCoMnO2 Battery Specification

**MODEL:INM11-26E2 (11.1V2.6AH)**

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

Customer Approval	Signature/Date
	Company Name
	Company Stamp

**Shenzhen Huarui Xinchuang Technology Co.,Ltd**

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Amendment Records

Edition	Description	Prepared by	Approved by	Date
A0	First Edition	nancy		
A1	Second Edition	nancy		

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## 1. Scope

This specification is applied to the LiNiCoMnO<sub>2</sub> battery pack by **Shenzhen Huarui Xinchuang Technology Co.,Ltd**

No.	Item	General Parameter	Remark
1	Rated Capacity	2.6Ah	Standard discharge (0.5 C <sub>5</sub> ) after standard charge (0.5 C <sub>5</sub> )
2	Minimal Rated Capacit y	2.5Ah	
3	Nominal Voltage	11.1V	
4	Cycle Life	Higher than 60% of the Initial	<ul style="list-style-type: none"> <li>◆ Charge: CC@0.5C to 12.6V, then CV till current to 0.05C</li> <li>◆ Rest: 30min.</li> <li>◆ Discharge: 0.5C to 9V</li> <li>◆ Temperature: 20±5°C</li> <li>◆ Carry out 500cycles</li> </ul>
5	Discharge cut-off voltage	9.0V	
6	Charging cut-off voltage	12.6V	
7	Cell and assembly method	ICR18650-26F(M) SAMSUNG cell	Page 1 of 1
	Housing material		


## – Product Specification

Table 1

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Continuous the table 1

No.	Item	General Parameter	Remark
9	Standard charge	0.5C constant current(CC) charge to 12.6V,then constant voltage (CC) 12.6V charge till charge current decline to $\leq 0.05C$	Charge time : Approx 4h
10	Standard discharge	Constant current 0.5C Cut-off voltage 9.0V	
11	Maximum Charge Current	3A	
12	Continuous Discharge Current	3A	
13	Operation Temperature Range	Charge: 0~45°C	60±25%R.H.
		Discharge: -20~60°C	
14	Storage Temperature Range	Less than 1 year : 0~25°C	60±25%R.H. at the shipment state
		Less than 3 months:- 5~35°C	
15	Weight	Approx: 160g	
16	Max. Dimensions	Height: 23mm	
		Width: 56mm	
		Length: 67mm	

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## – 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  $20\pm5^{\circ}\text{C}$  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  $15\sim30^{\circ}\text{C}$  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  $10\text{k}\Omega/\text{V}$

- Ammeter

Standard class specified in the national standard or more sensitive class. Total external resistance including ammeter and wire is less than  $0.01\Omega$ .


- 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 12.6V. The battery shall then be charged at constant voltage of 12.6V volts while tapering the charge current. Charging shall be terminated when the charging current has tapered to  $0.05\text{C}_5\text{A}$ . Charge time: Approx 4h, The battery shall demonstrate no permanent degradation when charged between  $0^{\circ}\text{C}$  and  $45^{\circ}\text{C}$ .

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- Standard Discharge : 0.5C  
Battery shall be discharged at a constant current of 0.5C to 9V @ 20° ± 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.

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## – Period of Warranty

The period of warranty is 24 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

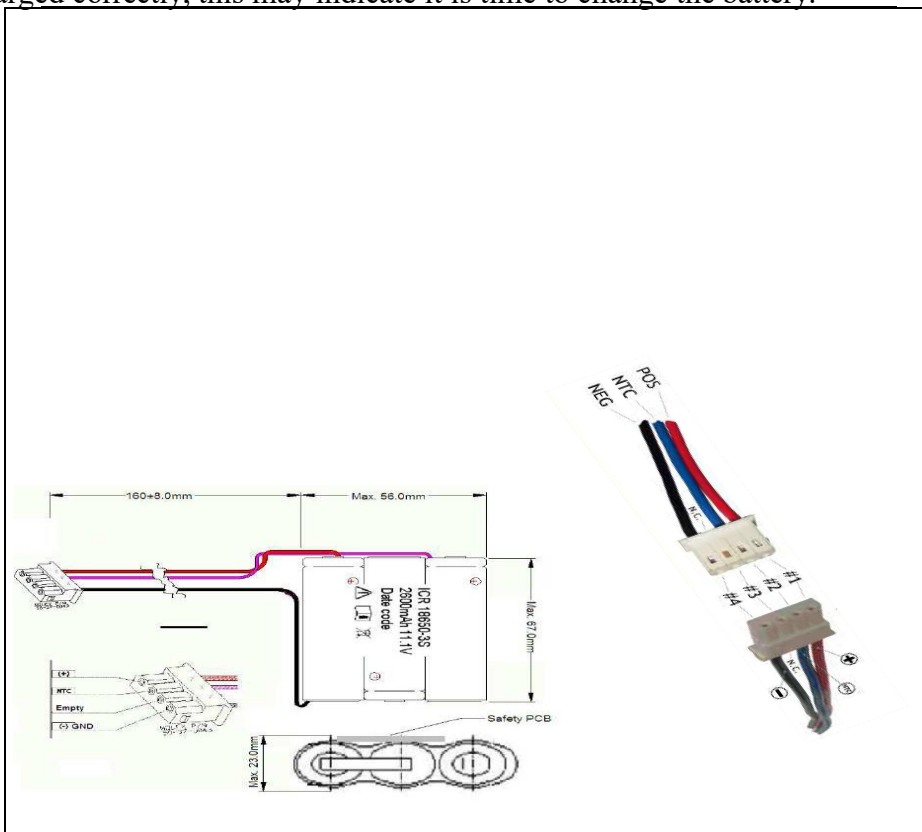
The batteries should be stored at room temperature, charged to about 30% to 50% of capacity.

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:



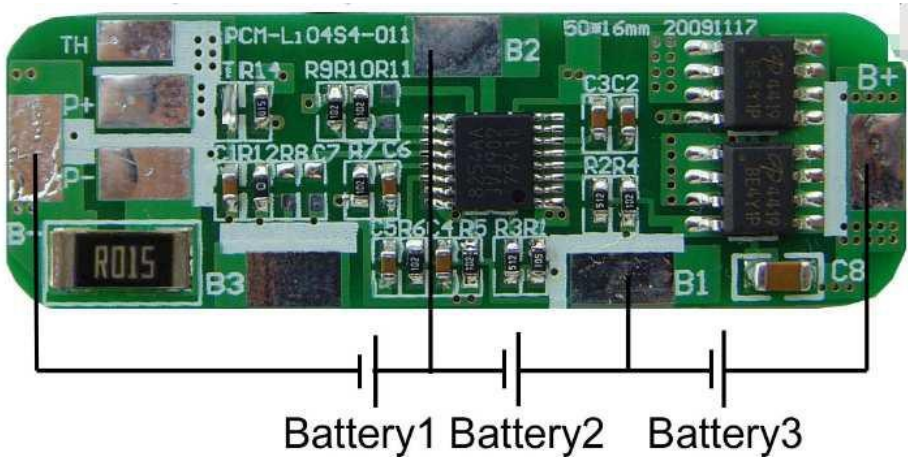
Wiring: AWG 20#, 160mm; Connector: Molex 5037/5043-4Pin (P+,NTC-10k,NC,P-)

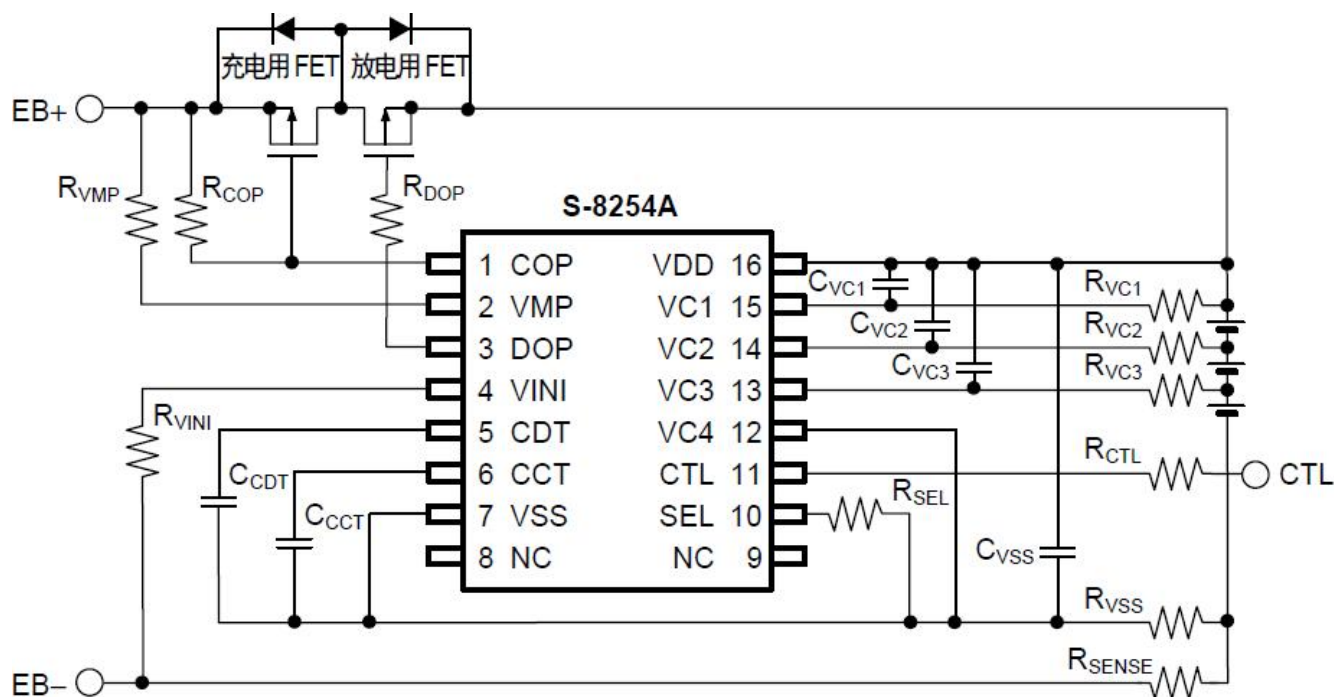
– Any other items which are not covered in this specification shall be agreed by both parties.

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– PCM Specification

Model: PCM-L04S4-011 (3S)			
No.	Test item		Criterion
1	Voltage	Charging voltage	DC12.6V CC/CV
		Balance voltage for single cell	
2	Current	Balance current for single cell	
		Current consumption for single cell	≤50μA
		Maximal continuous charging current	4A
		Maximal continuous discharging current	4A
3	Over charge Protection	Over charge detection voltage	4.25±0.05V
		Over charge detection delay time	0.5S—2S
		Over charge release voltage	4.15±0.1V
4	Over discharge protection	Over discharge detection voltage	2.50±0.1V
		Over discharge detection delay time	50mS—1500mS
		Over discharge release voltage	3.0±0.1V
5	Over current protection	Over current detection voltage	0.20±0.02V
		Over current detection current	6±1A
		Detection delay time	5ms—60ms
		Release condition	Cut load
6	Short protection	Detection condition	Exterior short circuit
		Detection delay time	200-800us
		Release condition	Cut load
7	Resistance	Protection circuitry	≤60mΩ
8	Temperature	Operating Temperature Range	-40～+85℃
		Storage Temperature Range	-40～+125℃
Temperature:+25℃, SIZE:L50*W16*T3mm			





### – Customized labeling

The customer reserves the right to request the personalization of the label according to the data that will be provided when ordering the goods.

According to the following requirements:

1st row: "Art. BATT142"

2nd row: "R03.91301"

3rd row: free and available for the manufacturer

4th row: reserved for manufacturer date-code

5th row: reserved for disclaimers, warning symbols and safety signs as shown into the next text.



and WEEE marking to be added.

Label must be free and without any indication about:

2. --capacitance and rated voltage;-- If no capacity and voltage, it's hard to arrange the shipment.

3. --name, identification or logo of the manufacturer;

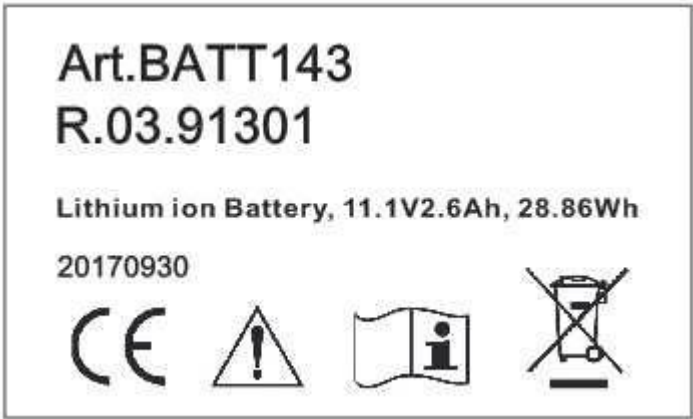
4. --manufacturer's item code or its part number;

5. --name, identification or logo of XXX.;

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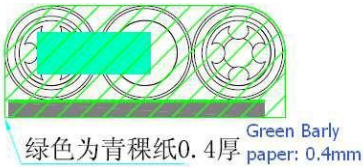
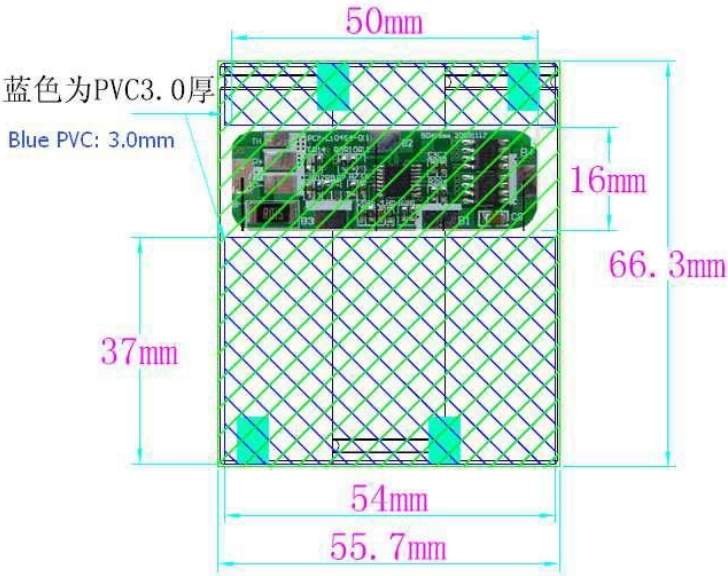
To the manufacturer is only allowed to use and write its own date-code and also has available an added single line for any other references (except part number).

Example of compilation and form setting:

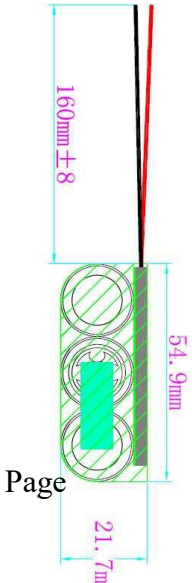


– 11.1V2600mAh 3 x size 18x65mm + PCM + External Connector

File available at public link: [http://www.molex.com/pdm\\_docs/sd/050375043\\_sd.pdf](http://www.molex.com/pdm_docs/sd/050375043_sd.pdf)



### Parts summary





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### Conformity "CE" marking (93/465/EC) :



( official government website link; compressed .JPG image file, for customized label editing )

<http://ec.europa.eu/enterprise/policies/single-market-goods/cemarking/downloads/ce-marking-logo.jpg>

### European waste classification official WEEE symbol :



( bitmap compressed, 2 color; .PNG image file, for customized label editing )

[https://dl.dropboxusercontent.com/u/67589928/RAEE\\_cassonetto\\_000.png](https://dl.dropboxusercontent.com/u/67589928/RAEE_cassonetto_000.png)

### Product identification :

Art. BATT142  
R.03.91301

( bitmap compressed, 2 color; .PNG image file, for customized label composition )

[https://dl.dropboxusercontent.com/u/67589928/Gimax\\_BATT142-00-91301\\_Label\\_GPb-Kayo-ICR18650-3celle.png](https://dl.dropboxusercontent.com/u/67589928/Gimax_BATT142-00-91301_Label_GPb-Kayo-ICR18650-3celle.png)

### Connector (Housing 4pin).



Data-Sheets of

Molex P/N 50-37-5043 (5264 product series)

[http://www.molex.com/pdm\\_docs/sd/050375043\\_sd.pdf](http://www.molex.com/pdm_docs/sd/050375043_sd.pdf)

### Connector (Single terminal contact).



Data-Sheets of

Molex P/N 00-39-0160 ( 5263 product series)

[http://www.molex.com/pdm\\_docs/sd/008701039\\_sd.pdf](http://www.molex.com/pdm_docs/sd/008701039_sd.pdf)

### Battery pack (mechanical dimension requirements) :



( .PNG image file, free and available to be added into the technical specifications )

[https://dl.dropboxusercontent.com/u/67589928/BATT142\\_external\\_dimensions.png](https://dl.dropboxusercontent.com/u/67589928/BATT142_external_dimensions.png)

<http://ec.europa.eu/enterprise/policies/single-market-goods/cemarking/downloads/ce-marking-logo.jpg>

[https://dl.dropboxusercontent.com/u/67589928/RAEE\\_cassonetto\\_000.png](https://dl.dropboxusercontent.com/u/67589928/RAEE_cassonetto_000.png)

[https://dl.dropboxusercontent.com/u/67589928/Gimax\\_BATT142-00-91301\\_Label\\_GPb-Kayo-ICR18650-3celle.png](https://dl.dropboxusercontent.com/u/67589928/Gimax_BATT142-00-91301_Label_GPb-Kayo-ICR18650-3celle.png)

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