

# LITHIUM MOTORCYCLE STARTER BATTERY

摩托车启动锂电池产品规格书

**型号 MODEL**  
**EN12-ST040B-N**



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## MODEL: EN12-ST040B-N

### INTRODUCE 简介:

The lithium motorcycle starter battery is a high-performance power battery designed for frequent start-stop scenarios. It has the core advantages of wide temperature adaptability (-30°C to 65°C), high rate discharge and long cycle life, and can fully replace traditional lead-acid batteries. Through material innovation and system optimization, LFP and NCM lithium batteries provide efficient and reliable power solutions for motorcycle start-stop scenarios, and promote the industry to green and intelligent upgrading.



摩托车启停锂电池是专为频繁启停场景设计的高性能动力电池，具有宽温适应性（-30°C至 65°C）、高倍率放电和长循环寿命等核心优势，可全面替代传统铅酸电池。通过材料创新与系统优化，LFP 和 NCM 锂电池为摩托车启停场景提供了高效、可靠的动力解决方案，推动行业向绿色化、智能化升级。

## PRODUCT SPECIFICATIONS 产品规格

| MODEL<br>型号                              | EN12-ST040B-N                                             |
|------------------------------------------|-----------------------------------------------------------|
| VOLTAGE (V)<br>电压                        | 12.8                                                      |
| CAPACITY(Ah)<br>容量                       | 4.0                                                       |
| DIMENSIONS SIZE<br>尺寸(L*W*H)mm           | 134 * 75 *133                                             |
| EXPANDED DIMENSIONS<br>拓展尺寸 (L*W*H) mm   | 134*89*163                                                |
| WEIGHT (kg)<br>重量                        | 0.9                                                       |
| CA(AMPS)<br>启动电流                         | 240                                                       |
| CCA(AMPS)<br>冷启动电流                       | 120                                                       |
| CAN REPLACE LEAD ACID BATTERY<br>可替代铅酸电池 | YT14AH-BS、12N7-3B、<br>12N7-4A、12N7-4B、<br>6MF7-BS、6MF9-BS |

## PRODUCT CHARACTERISTICS 产品特性

- ◆ Ultra high rate 100C discharge  
超高倍率 100C 放电
- ◆ Intelligent Battery Management System (BMS)  
智能电池管理系统 (BMS)
- ◆ Wide temperature range adaptive system  
(-30℃ to 65℃)  
宽温域自适应系统 (-30℃至 65℃)
- ◆ Long-term circulation and low self-consumption  
长效循环与低自耗
- ◆ Multi-scenario adaptability  
多场景适配性
- ◆ Lightweight structure design  
轻量化结构设计

## APPLICATION SCENARIO 应用场景

|                                                                                     |                                                                                     |                                                                                       |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|  |  |  |
| SUITABLE FOR SCOOTER                                                                | ROAD MOTORCYCLE                                                                     | ATV                                                                                   |
|  |  |  |
| SNOWMOBILE                                                                          | JET SKI                                                                             | UTV                                                                                   |

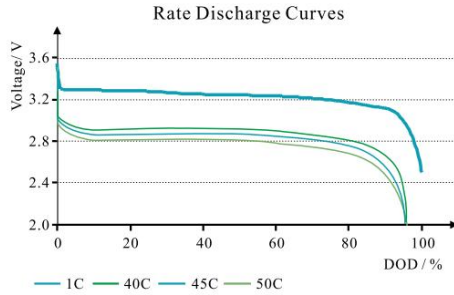
## BATTERY CELL PERFORMANCE TEST 电池电芯性能测试 (LFP)

### 1. ROOM TEMPERATURE RATE PERFORMANCE 常温倍率性能

常温倍率性能

Test method: At normal temperature, 0.5C constant current constant voltage charge to 3.68V, cut-off current 0.05C; 1C(up to 2.5V), 40C, 45C, 50C constant discharge to 2.0V.

测试方法:常温下, 0.5C 恒流恒压充至 3.68V, 截止电流 0.05C; 分别以 1C(2.5V 截至)、40C、45C、50C 恒流放电至 2.0V。

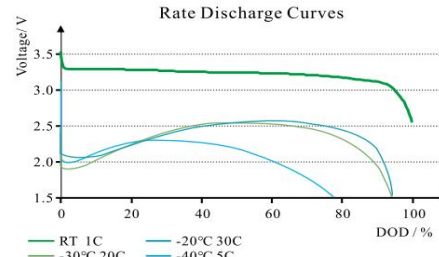


| Rate<br>倍率                        | 1C    | 40C   | 45C   | 50C   |
|-----------------------------------|-------|-------|-------|-------|
| Median voltage<br>中值电压/V          | 3.244 | 2.886 | 2.852 | 2.807 |
| Capacity holding ratio<br>容量保持率/% | 100.0 | 94.9  | 95.9  | 94.8  |

### 2. LOW TEMPERATURE PERFORMANCE 低温性能

Test method: Under normal temperature, 0.5C constant current constant voltage charge to 3.68V, cut-off current 0.05C; Set aside at the test temperature for 4~8h, and discharge to 1.5V at the corresponding magnification respectively.

测试方法:常温下, 0.5C 恒流恒压充至 3.68V, 截止电流 0.05C; 在测试温度下搁置 4~8h, 分别以相应倍率恒流放电至 1.5V。

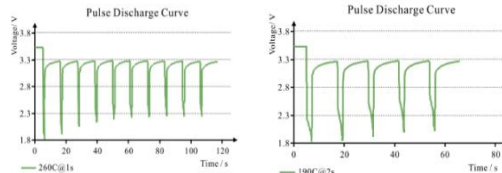


| Temperature<br>温度/°C              | RT    | -20°C | -30°C | -40°C |
|-----------------------------------|-------|-------|-------|-------|
| Rate<br>倍率                        | 1C    | 30C   | 20C   | 5C    |
| Median voltage<br>中值电压/V          | 3.244 | 2.637 | 2.591 | 2.276 |
| turning point<br>拐点/V             | --    | 2.105 | 1.856 | 1.931 |
| Capacity holding ratio<br>容量保持率/% | 100.0 | 95.4  | 94.1  | 76.5  |

### 3. PULSE DISCHARGE PERFORMANCE AT ROOM TEMPERATURE 常温脉冲放电性能

Test method: Under normal temperature, 0.5C constant current constant voltage charge to 3.68V, cut-off current 0.05C; Discharge at 260C pulse for 1s, 190C pulse for 2s.

测试方法:常温下, 0.5C 恒流恒压充至 3.68V, 截止电流 0.05C; 分别以 260C 脉冲放电 1s、190C 脉冲放电 2s。

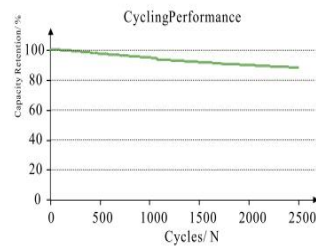


| Pulse magnification @ Time<br>脉冲倍率@时间 | Low head voltage<br>低头电压/V |
|---------------------------------------|----------------------------|
| 260C@1s                               | 1.811                      |
| 190C@2s                               | 1.879                      |

### 4. ROOM TEMPERATURE CYCLE 常温循环

Test method: At room temperature, charge to 3.68V at 1C constant current and constant pressure, cut-off current is 0.05C; Let stand for 10min; 2C constant current discharge to 2.5V; Do a loop test.

测试方法:常温下, 以 1C 恒流恒压充至 3.68V, 截止电流 0.05C; 静置 10min; 2C 恒流放电至 2.5V; 做循环测试。

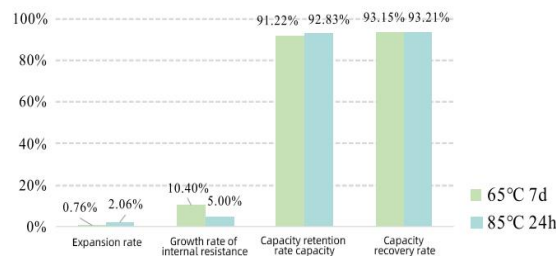


| Cycle number<br>循环次数 | Capacity retention rate/%<br>容量保持率/% | Median voltage/V<br>中值电压/V |
|----------------------|--------------------------------------|----------------------------|
| 1                    | 100.00                               | 3.192                      |
| 100                  | 100.46                               | 3.207                      |
| 300                  | 99.32                                | 3.214                      |
| 500                  | 98.03                                | 3.212                      |
| 700                  | 96.94                                | 3.211                      |
| 1000                 | 95.33                                | 3.210                      |
| 1300                 | 93.18                                | 3.204                      |
| 1500                 | 92.34                                | 3.203                      |
| 1700                 | 91.55                                | 3.202                      |
| 2000                 | 90.35                                | 3.200                      |
| 2300                 | 89.27                                | 3.198                      |
| 2500                 | 88.61                                | 3.197                      |

### 5. HIGH TEMPERATURE STORAGE 高温存储

Test method: At room temperature, 0.5C constant current constant voltage charge to 3.68V, cut-off current 0.05C; After being stored at 65°C for 7d and 85°C for 24h, the current was discharged to 2.5V at 1C. Then charge 1C at 0.5C, cycle 3 times, record the internal resistance, thickness and capacity of the battery before and after storage.

测试方法:常温下, 以 0.5C 恒流恒压充至 3.68V, 截止电流 0.05C; 分别在 65°C 下存储 7d、85°C 下存储 24h 后, 以 1C 恒流放电至 2.5V; 再以 0.5C 充 1C 放, 循环 3 次, 记录电芯存储前后内阻、厚度、容量。



## BATTERY CELL PERFORMANCE TEST 电池电芯性能测试 (NCM)

### 1. RATE DISCHARGE & PULSE DISCHARGE RT

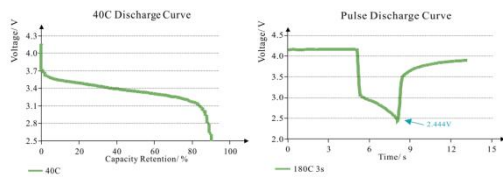
倍率放电&脉冲放电 RT

Test method a: At room temperature, 0.5C constant current constant voltage charge to 4.2V, cut-off current 0.05C; Then 40C constant current to 2.5V;

Test method b: At room temperature, 0.5C constant current constant voltage charge to 4.2V, cut-off current 0.05C; Then discharge 3s at 180C pulse.

测试方法 a: 常温下, 以 0.5C 恒流恒压充至 4.2V, 截止电流 0.05C; 再以 40C 恒流放电至 2.5V;

测试方法 b: 常温下, 以 0.5C 恒流恒压充至 4.2V, 截止电流 0.05C; 再以 180C 脉冲放电 3s。



| item<br>项目 | Median voltage/V<br>中值电压/V | 容量保持率/%<br>Capacity retention rate/% |
|------------|----------------------------|--------------------------------------|
| 40C        | 3.37                       | 90.09                                |

| item<br>项目 | Low head voltage/V<br>低头电压/V |
|------------|------------------------------|
| 180C 3S    | 2.444                        |

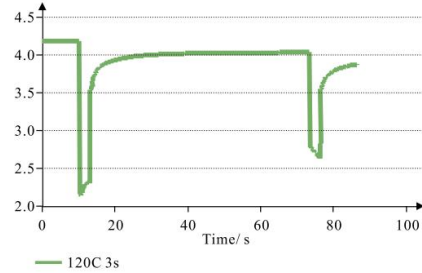
### 2. LOW TEMPERATURE PULSE DISCHARGE -10

低温脉冲放电-10℃

Test method: At room temperature, 0.5C constant current constant voltage charge to 4.2V, cut-off current 0.05C; Set aside at -10℃ for 4h, and then discharge 3s at 120C pulse.

测试方法: 常温下, 以 0.5C 恒流恒压充至 4.2V, 截止电流 0.05C; -10℃下搁置 4h, 再以 120C 脉冲放电 3s。

Pulse Discharge Curve at -10℃

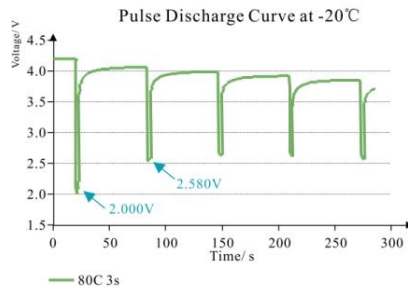


| item<br>项目 | Low head voltage/V(First)<br>低头电压/V(第一次) | Low head voltage/V (Second)<br>低头电压/V (第二次) |
|------------|------------------------------------------|---------------------------------------------|
| 120C 3S    | 2.155                                    | 2.639                                       |

### 3. Low temperature pulse discharge -20℃ 低温脉冲放电-20℃

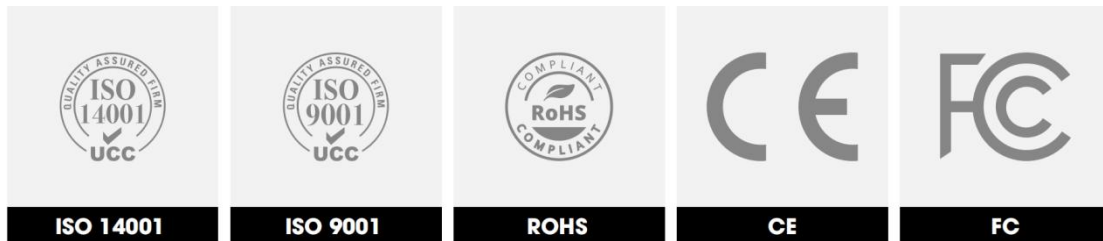
Test method: At room temperature, 0.5C constant current constant voltage charge to 4.2V, cut-off current 0.05C; Set aside at -20℃ for 4h, and then discharge 3s at 80C pulse.

测试方法: 常温下, 以 0.5C 恒流恒压充至 4.2V, 截止电流 0.05C; -20℃下搁置 4h, 再以 80C 脉冲放电 3s。



| Item<br>项目                                | 80C 3S |
|-------------------------------------------|--------|
| Low head voltage/V(First)<br>低头电压/V(第一次)  | 2.000  |
| Low head voltage/V(Second)<br>低头电压/V(第二次) | 2.580  |
| Low head voltage/V(Third)<br>低头电压/V(第三次)  | 2.638  |
| Low head voltage/V(Quater)<br>低头电压/V(第四次) | 2.613  |
| Low head voltage/V(Fifth)<br>低头电压/V(第五次)  | 2.557  |

## CERTIFICATION 认证



## STORAGE AND SHIPMENT REQUIREMENT 存储及运输要求

| Item<br>项目                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             | Requirement<br>要求                                                                                                                                                           | Remark<br>备注                                                                                                   |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------|
| Storage temperature<br>存储温度                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | $\leq 1$ month: $-20^{\circ}\text{C} \sim 45^{\circ}\text{C}$<br>$\leq 3$ month: $-20^{\circ}\text{C} \sim 30^{\circ}\text{C}$<br>$\leq 1$ year: $23 \pm 2^{\circ}\text{C}$ | The recommended storage<br>Temperature is $23 \pm 2^{\circ}\text{C}$ .<br>推荐存储温度为 $23 \pm 2^{\circ}\text{C}$ 。 |
| Humidity<br>环境湿度                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | 45%~85%RH                                                                                                                                                                   | /                                                                                                              |
| State of charge<br>荷电量                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 50%-100%                                                                                                                                                                    | Voltage: 3.20-3.65V<br>电压: 3.20-3.65V                                                                          |
| <p>1.The storage temperature should be controlled at <math>-20^{\circ}\text{C} \sim 40^{\circ}\text{C}</math>, away from open flame, corrosive substances and humid environment.<br/>存放温度应控制在 <math>-20^{\circ}\text{C} \sim 40^{\circ}\text{C}</math>, 远离明火、腐蚀性物质及潮湿环境。</p> <p>2.Do not charge in a sealed, high temperature (<math>&gt; 40^{\circ}\text{C}</math>) or low temperature (<math>&lt; -5^{\circ}\text{C}</math>) environment to avoid abnormal reaction of the electrolyte.<br/>禁止在密封、高温 (<math>&gt; 40^{\circ}\text{C}</math>) 或低温 (<math>&lt; -5^{\circ}\text{C}</math>) 环境下充电, 避免电解液异常反应。</p> <p>3.Do not reverse connect the positive and negative terminals; otherwise, short circuit or device damage may occur.<br/>禁止反接正负极, 否则可能引发短路或设备损坏。</p> <p>4.If the volume of the lithium battery is smaller than that of the original battery, secure the battery using the provided base or foam to ensure stable installation.<br/>若锂电池体积小于原装电池, 需通过附赠的底托或泡棉固定, 确保电池安装稳固。</p> <p>5.When storing, it is important to avoid external vibrations and colisions as much as possible to avoid short circuits inside the battery or damage to the metal casing.<br/>存放时应尽量避免外力的振动和碰撞, 以免造成电池内部短路或损坏金属外壳。</p> |                                                                                                                                                                             |                                                                                                                |

## CONTACT INFORMATION 联系方式



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