

POWER-XTRA

Model : Power-Xtra 1.2V Ni-Mh 4/3 A 3800 Mah PVC Rechargeable Battery Ver:A2 NO: 900.600.503.225

SPECIFICATIONS OF NICKEL METAL HYDRIDE BATTERY

Model :
型号: 4/3A

Stock Code:
客户型号: 900.600.503.225

Nominal Voltage:
标称电压: 1.2V

Capacity:
容量: 3800mAh

Draft 起草	Checking 审核	Approved 批准	Customer Confirmation 客户确认
Peter	Chun Qi Zeng		

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Revision History 版本记录

Revision 版本	Date 日期	Editor 编著	Contents 内容
1.0		Peter	Draft
A2	2017-06-22	Peter	增加包装, 及日期喷码描述

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APPLICATION: The applicable range: This specification is available only for the testing within one month since receipt of batteries. It's not a standard for stored goods.

1. Model: PX-H4-3A3800-1.2V

2. RATINGS

Nominal Voltage	<u>1.2</u> V
Nominal	<u>3800</u> mAh
Minimum	<u>3800</u> mAh/0.2C
Standard charge rate	<u>380</u> mA × 16h
Rapid charge rate	<u>3800</u> mA × 72min

(-ΔV= 100mV)

Value of dT/dt (for reference only)	1 to 2 °C/min
Operating temperature range	Humidity: +65%± 20%
Standard charge	0 to +45°C(32 to 113°F)
Rapid charge	+10 to +45°C(50 to 113°F)
Discharge	-20 to +65°C(-4 to 149°F)
Storage temperature range	Humidity : +65%±20%
Within 1 year	-20 to +35°C(-4 to 95°F)
Within 6 months	-20 to +45°C(-4 to 113°F)
Within 1 month	-20 to +55°C(-4 to 131°F)
Within 1 week	-20 to +65°C(-4 to 149°F)

Note :

- (1) All rapid charge methods should be discussed with our engineer
- (2) We stipulate to charge less than 40% fully power for delivery, if the charge is more than 40%, the battery has a certain latent risk. For the charge requirement is over 40% which caused quality problem, we do not undertake any responsibility.
- (3) Our battery guarantee time: 12 months
- (4) During storage period the batch battery is requested by the 40% electric charge, the battery storage surpasses 3 months, the recommendations 0.2C discharge to 1.0V and then add 40% of the electricity storage.

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3. Performance Testing

3.1. TEST CONDITIONS

3.1.1 The battery to be tested is the product within one month after being received by customer.

3.1.2 Ambient conditions:

Temperature	+20°C±5°C
Humidity	+65%±20%

3.2 Testing Tools

3.2.1 Voltage meter:

0.5 level or higher as required in IEC51/IEC485. Internal impedance exceeds 10KΩ/V.

3.2.2 Current meter:

0.5 level or higher as required in IEC51/IEC485. Internal impedance should be less than 0.01Ω/V(including wires).

3-2.3. Micrometer caliper:

With precision of 0.02mm.

3-2.4. Internal impedance meter:

Alternating current of 1000HZ, connector measuring equipment with sin wave of 4.

3-2.5: Impedance loaded meter:

Value of impedance is with ±5% error allowed (including external wires).

3.2.6 Incubators Accuracy ±2°C

3.3 Test methods and benchmarks

Item	Test Method	Benchmark
1. Appearance:	◇ eyeballing	◇ batteries shall be free from any stains; scratches or deformations, which may reduce the commercial value when visually inspected
2. Size:	◇ caliper measurement.	◇ The size shall comply with the specified size as the attached drawing
3. Insulate impedance	◇ measured with a Megger overpack and battery electrode between the degree of insulation.	◇ outer sleeve shall exceed <u>26</u> MΩ.
4. Weight	◇ using disk-scale measurement.	◇ approximate <u>49</u> g.
5. Charge Voltage	◇ Following a period of discharge at 0.2CmA down to a terminal voltage of 1.0V, standard charge, the cell or battery shall be checked at 5 minutes before finish charging.	◇ The voltage shall be less than <u>1.6</u> V.
6. Open circuit voltage: (O.C.V.)	◇ Following a standard charge period, the open circuit voltage of the cell or battery shall be checked within 1 hour. .	◇ The O.C.V. shall exceed <u>1.25</u> V
7 . Closed circuit	◇ Following a standard charge period, the closed	◇ The C.C.V. shall exceed <u>1.2</u> V.

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voltage: (C.C.V.)	circuit voltage of the cell or battery shall be checked with a 17.2 Ω load within 1 hour.	
8. Internal impedance	<ul style="list-style-type: none"> Following a standard charge period, the internal impedance of the cell or battery shall be checked at 1000Hz within 1 hour 	<ul style="list-style-type: none"> The internal impedance shall not be more than <u>26</u>mΩ.
9. capacity	<ul style="list-style-type: none"> Following a standard charge period, the cell shall be stored for a period of 1 hour. The capacity shall be equal or more than minimum capacity when discharged at <u>0.2C</u> mA down to a terminal voltage of 1.0V; The capacity returned might not initially attain the specified value following the first charge-discharge cycle. In this event, the test may be repeated a further two or three times to attain the minimum capacity. 	<ul style="list-style-type: none"> The capacity is greater than or equal to the minimum capacity.
10 . High Drain Discharge	<ul style="list-style-type: none"> To discharge by <u>1.0</u> C to 0.8V within 1 hour after standard charge. 	<ul style="list-style-type: none"> The Capacity is higher than or equal to \geq<u>54</u> min.
11. Over-charge	<ul style="list-style-type: none"> Following a period of discharge at <u>0.2C</u> mA down to a terminal voltage of 1.0V, standard charge and then charge for 48hrs at <u>0.1C</u> mA. The capacity of the cell or battery shall not be less than the rated capacity when discharged at <u>0.2C</u> mA 	<ul style="list-style-type: none"> The Capacity is higher than or equal to \geq<u>300</u> min. It shall not be externally deformed and no leakage of electrolyte in liquid form shall be observed..
12. Over-discharge	<ul style="list-style-type: none"> Following a period of discharge at <u>0.2C</u> mA down to a terminal voltage of 1.0V, combine the cells with a <u>0.86</u> Ω load. After stored for a period of 24 hours, standard charged and then discharge at <u>0.2C</u> mA. 	<ul style="list-style-type: none"> the cell or battery shall not be externally deformed and no leakage of electrolyte in liquid form shall be observed, and the subsequent capacity shall not be less than <u>80%</u> of rated capacity.
13. Self discharge	<ul style="list-style-type: none"> Following a period of discharge at <u>0.2C</u> mA down to a terminal voltage of 1.0V, standard charge and then the cell or battery shall be stored for 180 days below 20°C. 	<ul style="list-style-type: none"> The subsequent capacity shall not be less than <u>80%</u> of rated capacity when discharged at <u>0.2C</u> Ma. . ★
14. Cycle Life	<ul style="list-style-type: none"> Based on clause 7.4.1.1, IEC61951-2 2003. 	<ul style="list-style-type: none"> The charge-discharge cycles shall exceed <u>500</u> times.
15. Humidity	<ul style="list-style-type: none"> Standard charge and store for 14 days under the following storage conditions : 33°C\pm3°C(91.4°F\pm5.4°F) , Relative humidity of 80%\pm5%. (Salting is permitted).. 	<ul style="list-style-type: none"> No leakage of electrolyte in liquid form shall be observed.

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16. Vibration	<ul style="list-style-type: none"> Store the cell or battery more than 24 hours after standard charge, following vibration tests over an amplitude of 4 mm (0.1575 inches) at a frequency of 16.7 Hz(1000 cycles per minute) and repeated through any axes during 60mins. 	<ul style="list-style-type: none"> The subsequent fluctuation of open circuit voltage and internal impedance shall be less than <u>0.2</u> V and <u>5</u> mΩ respectively, and the cell or battery shall not be externally deformed and no leakage of electrolyte in liquid form shall be observed. .
17. Free falling: (Drop)	<ul style="list-style-type: none"> Store the cell or battery more than 24 hours after standard charge, following a drop test from 1000mm (39.37 inches) on to a hard-wood board in a vertical axis 2 times on each of 2 mutually perpendicular axes, 	<ul style="list-style-type: none"> The subsequent fluctuation of open circuit voltage and internal impedance shall be less than <u>0.02</u> V and <u>5</u> mΩ respectively, and the cell or battery shall not be externally deformed and no leakage of electrolyte in liquid form shall be observed. .
18. Short-circuit testing	<ul style="list-style-type: none"> to store it for 1 hour after standard charged, and to make positive and negative electrode short-circuit with a wire with the section 0.75mm²min and shortest length, the short-circuit time is 1 hour 	<ul style="list-style-type: none"> It shall not explode during or at the end of a 1 hour short-circuit test. However, leakage of electrolyte, external deformation or outer sleeve cracking is permitted. .
19. Safety Valve Performance (Over dis-charging)	<ul style="list-style-type: none"> The battery to 0.2C discharge to 0V, then raise the current 1.0C discharge 60min. 	<ul style="list-style-type: none"> The safety valve must start normally , battery without breakage;Leakage, distortion and outer package breakage are allowed
20. Safety Valve Performance (over charging)	<ul style="list-style-type: none"> to be charged with <u>1C</u> mA for 5 hours 	<ul style="list-style-type: none"> No explosion, but leakage, distortion and out package breakage are allowed
21.To discharge at low temperature	<ul style="list-style-type: none"> to be stored for 24 hours at 0°C±2°C, and discharged at <u>0.2C</u> mA at 0°C±2°C. 	<ul style="list-style-type: none"> discharge duration shall exceed <u>3</u> hour <u>30</u> min.

4. The transportation and storage

4.1 Transportation

In the transportation process the battery should maintain at clean, dry, and the well ventilated environment, and prevents the fierce vibration, the impact or the extrusion, prevents to be exposed to the sun and rain. Battery could be transported by automobile, train, steamboat ,airplane and other transportation vehicle .

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4.2 Storage

4.2.1 Battery must be stored at $-20\text{ }^{\circ}\text{C} \sim +35\text{ }^{\circ}\text{C}$, (It is best at $15\text{ }^{\circ}\text{C} \sim +25\text{ }^{\circ}\text{C}$) and put in the clean, dry and ventilated place with relative humidity 85% max.. It must be kept away from corrosive substance, fire hazard and heat resource.

4.2.2 Storage placement way

The packed battery in a carton stack less than 5 layers, to guarantee that between the cell box has the good air circulation condition, please maintain between the carton above 5-10 cm distance, which prevents the safety incident caused by a pile of agglomeration to heat .

5. Warning and Security

To prevent the impact of equipment failure caused by the battery, and to make sure the security of circuit and battery set, please consider below things when design and produce the production equipment. Please put it into your instruction.

▲ Danger !

★ Against the following matters will result in battery leakage, heat, explosion, fire and serious personal injury!

(1) Prohibited to throw the PX battery into fire or heat!

(2) Prohibited to collide or throw PX battery!

(3) Don't weld the lead on the PX battery directly.

(4) Don't put the PX battery on a place which is more than 1.5 meter in case of dropping. Don't drop it at the height of more than 1.5 meter.

(5) Don't connect the positive pole and electrode pole directly of PX battery, such as leading wire. If the tab terminal of poles doesn't set insulation covering, please don't transport or store. Please don't touch the metal necklace, key or any other conductive material. Please use special carton when transport or store.

(6) Must use the charger appointed by PX to charge PX batteries, and follow the instructions of PX

(7) Prohibited to disassemble PX batteries. It will cause external or internal short circuit, and the exposed parts will have chemical reaction then result in very dangerous heat, explosion, fire or splash of electrolyte.

▲ Warning !!

(1) Don't contact batteries with water, sea water or other oxidation reagents, which will cause rustiness and heat. If batteries get rusty, explosive decompression valve won't work and will lead to explosion.

(2) Don't over-charge PX batteries, that is, don't continually charge batteries despite the designed charging time. If the batteries are not fully charged within the designed charging time, please stop to charge. The delay of charging time will lead to leakage, heat and explosion.

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- (3) PX NI-MH battery includes the colorless strong alkaline liquor (i.e. electrolyte), if the skin or clothes touch PX NI-MH battery liquor, please use the boron acid water or the vinegar acid water to clean, after that , with the clear water thoroughly flushes. Because the battery's electrolyte can corrode the skin.
- (4) It is forbidden for more than 20 pcs batteries in series. Because it will result in leakage, getting shock or giving off heat.
- (5) Don't disassemble the battery, as it will result in short-circuit, leakage, giving off heat, catching fire and explosion.
- (6) Don't use the batteries when they are leakage, any color deterioration, distortion or other changes are found. Otherwise it will get hot, catching fire or explosion may happen.
- (7) Please keep the batteries and other electronic products related to battery away from baby, children, to avoid accident of swallowing of battery. If there is any accident, please go to see the doctor.
- (8) To use new battery when the working time of the battery is far short from the initial working time, as the cycle life of this battery is finished.

6. Drawing of Label 标签图

标签印字方式：不干胶卷标丝印。卷标尺寸：70*56mm

日期印字方式：喷码。日期随生产日期更改，YY 为年，MM 为月，如 1606 (2016 年 06 月)。



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Nominal voltage (V) 标称电压		1.2	
Capacity* 容量 (mAh)	Nominal 标称	3300	
	Minimum 最小	3300	
Charging** 充电	Standard 标准	0.1C×16hours	
	Quick 快速	0.2C×7hours	
	Rapid 急速	0.5C×2.4hours -ΔV=5mV	
Temperature recommended 建议温度 (°C)	Standard charge 标充	0~40	
	Quick charge 快充	10~40	
	Rapid charge 急充	10~30	
	Discharge 放电	-10~50	
	Storage 存放	-20~30	
Internal resistance 内阻		≤26 mΩ	
End voltage of discharge 终止电压		1.0V	
Charge (capacity) retention 荷电保持 (20°C 28days 0.2C discharge to 1.0V)		≥210 minutes	
Weight 重量		Approx. 49g	
Dimensions With tube 带套管尺寸	D	Diameter 直径	17.0 ⁺⁰ _{-0.5}
	H	Height 高	67.0 ⁺⁰ _{-1.0}
	a	Top diameter 帽径	7.0 ⁺⁰ _{-0.1}
Drawing 示图	Unit:mm		
<p>Note:</p> <p>*:The cycle life curve describes battery unit. Please discharge to the 1.0V end voltage with 0.2C before charging the battery unit. The data sheet is for reference only and should not be used as a basis for product described guarantee or warranty.</p> <p>注意: *该循环寿命曲线描述的是单体电池的循环寿命, 充电前应将电池以 0.2C 电流放电至终止电压 1.0V。 此 data sheet 仅供参考, 而不能作为我们产品的基本担保或凭证。</p>			

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Drawing Packing 包装图

PP 袋单独包装或卡纸，再装内盒，每箱不超 10KG，贴侧唛；客户定制 Logo 外箱；外箱 Logo 内容格式如下：

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侧唛：

条形码格式为：GS1(EAN.UCC)/ENA-13 Bar code，侧唛分别贴于纸箱两侧（尺寸视纸箱尺寸更改），内容及格式如下：

PO NO.		← 根据每次订单更改
MODEL NO.	900.600.503.225	
QTY	500PCS	← 根据每箱数量更改
DATE	YYYY-MM-DD	← 根据出货日期更改
Made in China		
		
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