Specification Approval Sheet

Name: Lithium-ion battery charger

Model: 01451

SPEC: 4 slots 4.2V Li-ion battery charger

Approved By	Checkup	Make
Jay Wang		Yezi Dong
2016-1-5		2016-1-4

Customer Confirmation	Signature	Date
	Company Name：	
	Stamp：	

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Amendment Records

Revision	Description	Issued Date	Approved By
A0	New release	2015-12-22	Yezi
A1	Add low voltage shut-off function, change pre-charge current from 50mA to 20mA	2016-1-4	Yezi
A2	Modify pre-charge current from 20mA to 40mA, add mechanical spec	2016-5-9	Jay Wang
A3	Add over-all timer of 3 hours	2016-5-25	Jay Wang

1.0 Scope

This specification describes the physical and electrical characteristics of Tenergy 4 slots rechargeable Lithium Ion RCR123A battery charger.

2.0 Electrical Specification

2.1 Power Adapter

2.1.1 Input Voltage

100-240V ac, 50/60 Hz

2.1.2 Output Voltage

12V dc ± 5%

2.1.3 Output Current

1A

2.2 Charger

2.2.1 Charging Method

CCCV (constant current constant voltage)

2.2.2 Output Voltage

4.2V

2.2.3 Charging Current (per channel)

No charge when battery voltage is less than or equal to 1V.

Pre-charge current: 40mA (1V < battery voltage < 2.5V) *(Note: In pre-charge mode, charger will shut off output if battery voltage does not reach 2.5V in 30 minutes.)*

Rated charging current: 400mA (battery voltage ≥ 2.5V)

2.2.4 Charging current when LED light switch at full charge

50mA ± 10mA

2.2.5 Short circuit current

When short circuit occurs, LED light is flashing Red as warning. Short circuit current is smaller than 5mA.

2.2.6 Reverse protection current

The current of reverse protection is less than 10mA. LED light is flashing Red as warning.

2.2.7 Reverse leakage current

When the battery is under normal charging and AC input is cut-off, the battery to charger reverse leakage current is less than 1mA.

2.2.8 Battery

The Tenergy 4-slots charger is designed for 16330 Li-ion 3.7V batteries with protection circuit.

2.2.9 Over-heat protection

This charger has inbuilt over-heat protection. When temperature reaches over 80 C, the charger will cut off the output.

2.2.10 Over-all charging safety timer

This charger has built in safety timer that stops charging output in 3 hours of normal operation.

3.0 LED light

LED light indication

Plug in	Red and Green alternate flash for one second
No battery	Off
Charging	Red on
Fully charged	Green on
Low voltage battery (<1V)	Red flash (slow)
Short circuit or reverse	Red flash (fast)

4.0 Environmental specification

4.1 Working temperature range

0 to 40℃

4.2 Relative humidity range

≤ 90%

4.3 Storage temperature range

-20 to 80℃

4.4 Storage humidity

≤ 85%

5.0 Mechanical specification

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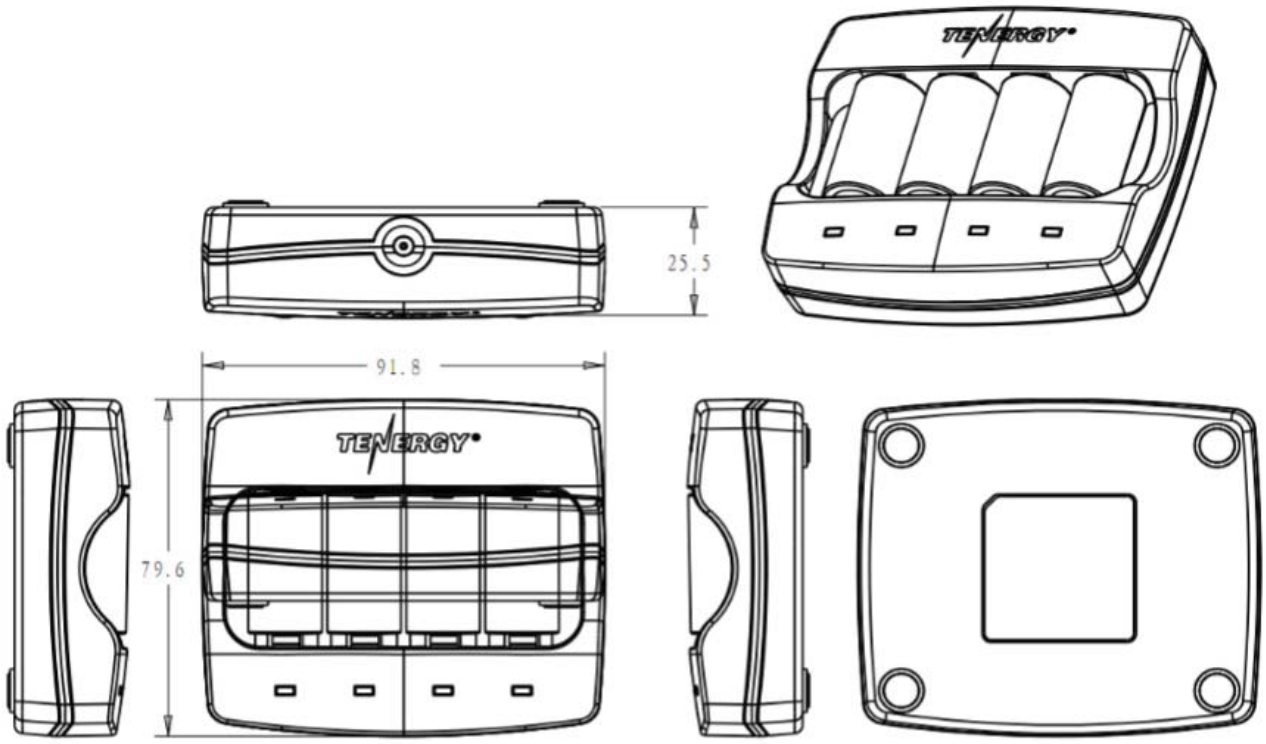

6.0 Reliability testing

6.1 High temperature test: Place the charger under 65℃ ±2℃ for 5 hours. Then take the charger to room temperature, test its appearance, LED and electrical specification. The appearance should have no scratches, burrs and other mechanical damages, and metal parts should have no corrosion. Electrical functions and LED lights work normal.

6.2 Low temperature test: Place the charger under – 20℃ ±3℃ for 8 hours. Then take the charger to room temperature, test its appearance, LED and electrical specification. The appearance should have no scratches, burrs and other mechanical damages, and metal parts should have no corrosion. Electrical functions and LED lights work normal.

6.3 The constant humidity and heat test: Place the charger under 40℃ ±2℃ and relative humidity 90%～95% for 48 hour. Then test its appearance, LED and electrical specification. The appearance should have no scratches, burrs and other mechanical damages, and metal parts should have no corrosion. Electrical functions and LED lights work normal.

6.4 Vibration test: 10～55HZ， amplitude 0.35mm， Sweep cycles in each direction 10 times. Then test its appearance, LED and electrical specification. The appearance should have no scratches, burrs and other mechanical damage, metal parts rust should have no corrosion. LED indicator and electrical specification works normally

6.5 Drop test: Free fall from 1M, the test platform is 20mm thick hard board. 6 surface, once in each direction. Then test the charger appearance, Dielectric strength, LED and electrical specification. Electrical functions and LED lights work normal. There should be no appearance damage, no loose parts inside.

7.0 Cautions

- Do not use the charger when ambient temperature is over 40℃
- Do not use the charger close to any source of heat and fire
- Do not disassemble any charger or battery
- Do not use this charger to charge batteries other than suited Tenergy brand batteries
- Do not use the charger when there is risk of water contamination