Jeff Power Co. Ltd.

Technical Specification Model: JPC-F23

1. Application

This Specification shall be applied to JPC-F23 Ultra Speed battery charger only.

2. Safety and CE requirement

Charger comply with LVD and EMC test requirement

Both adaptor and AC cable comply with EMC test requirement

Plastic case and blister material get SGS approval, Cd, Pb free

2. Normal Parameter

2-1. Input

Input Voltage	DC 12±5% V、1.66A
Capacity	20VA

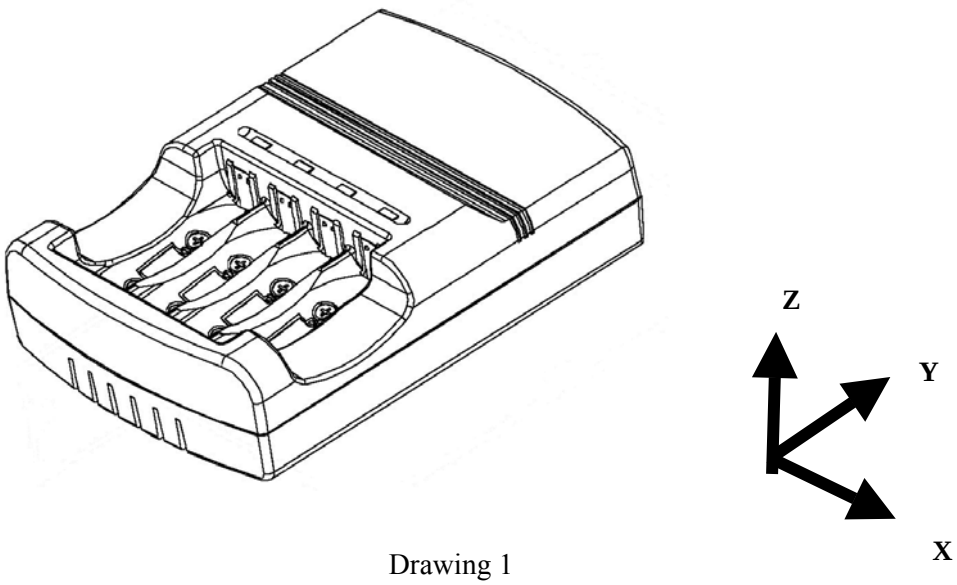
2-2. Output

Out put Voltage	DC2V
Current	4A

3. Basic performance

3-1. Charging position

As drawing 1, device should be horizontally placed as X-Y indicated; the side with battery compartment should be upward.



Drawing 1

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3-2. Features

3-2-1. Battery

Any Ni-Cd or Ni-MH AA/AAA rechargeable battery。

3-2-2. Charge time with different battery .

Type / size / capacity	Charging time
Ni-Cd / AA / 600mAh	Approximate 10min
Ni-Cd / AAA / 300mAh	Approximate 10min
Ni-MH /AA / 2000mAh	Approximate 30min
Ni-MH / AAA/ 1000mAh	Approximate 30min

3-2-3. Charge time for 2-4 batteries

Type / size / capacity	Battery quantity and charge time		
	1-2	3	4
Ni-Cd / AA / 600mAh	20min±10min	30min±10min	40±10min
Ni-Cd / AAA / 300mAh	20min±10min	30min±10min	40±10min
Ni-MH / AA / 2000mAh	60min±10min	90min±10min	120±10min
Ni-MH / AAA / 1000mAh	60min±10min	90min±10min	120±10min

3-2-4. Protect against over-charging
Detect battery's peak voltage, even in failure to find the peak, charge will be controlled by any of -⊿V or the charge limiter.

3-2-5. Battery type detection
Automatic detect Ni-Cd and Ni-MH battery according to the voltage variation,

3-2-6. Error detection
LED indicators to indicate when each battery is charged, complete charged, and defective.

3-3. Electrical Features

	Items	Condition	Specifications
1	Input voltage range	Normal input voltage	±10%
2	Max capacity	Charge the specified battery (Note 1) under normal voltage.	20VA+20%
3	Charge Current1	Charge AA dummy battery under Normal voltage.	4.0A±400mA
4	Charge Current 2	Charge AAA dummy battery with Normal input voltage.	2.0A±400mA
5	Charged ratio	Discharge the battery under 1.0V with 1.0A fixed current, and leave it under normal ambient temperature for 30 min, then recharge until completed	More than 80%
6	Insulating Voltage of AC adaptor	3000 Vac 2 seconds, 10mA maximum between primary to secondary circuit and chassis.	Keep normal (note 3)
7	Temperature raising Ratio	Charge the specified battery (Note 1) with normal voltage.	Case: less than 25k. Coil: less than 60k
8	Times limiter	Charge the specified battery (Note 1) with rating input voltage.	Ni-MH 270 times Ni-Cd 202 times
9	LED indication	Standby, no battery	LED OFF
		Under charging	Flash in 1Hz
		Error detected	Flash in 5Hz
		Charge completed	Flash in Static ON
10	Error detection (LED 5Hz reduce)	Short battery, or short circuit is detected	Battery is less than 0.5 V
11	Resistance to Static discharge	Load ±8KV、200pF、100Ω	Keep normal (Note 3)
		Load ±10K, 200pF, 100Ω	After power on, recover to the normal condition
		Load ±15K, 200pF, 100Ω	No sparkle nor smoke
12	Resistance on Ripple noise	Less than 120mVr	Tested by dc loading side parallel with a 10uF/EC & 0.1uF/CC capacitor and Measured Band –width DC-20MHz.
13	Power pause (lower than Normal Voltage)	Less than 3 circles	Keep normal
		More than 3 circles but less than 120 circles	After reset the power, recover to the normal condition
14	Inrush Voltage of AC Adaptor	±1 KV	Keep normal (note 3)
		±2 KV	After reset the power, recover to the normal condition

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Note 1:

The specified battery means the new battery fully charged and discharged until 1.0V with fixed current 1.0A, this battery is activated.

Note 2:(Charged ratio %)＝{ [(discharge time h)x(1000mA)] ÷ (guaranteed capacity of battery mAh)} x 100%

Note 3:keep normal means the device is running properly

3-4. Ambient conditions

No.	Items	Condition	Specification
1	Performance range (Note 1)	Temperature	10℃ ～ 35℃
		Humidity	30% ～ 90%
2	Operation range (Note 2)	Temperature	0℃ ～ 45℃
		Humidity	30% ～ 90%
3	Storage range	Temperature	-10℃ ～ 70℃
		Humidity	30% ～ 90%
4	High temperature and high humidity	Keep the device 100 hours in ambient temperature 60℃±2℃、humidity 90%	After 2 hours be put in normal temperature, the charger can basically fulfill the function requirement again.
5	Low temperature	Keep the device 6 hours in the ambient temperature -25℃±2℃	After 2 hours be put in normal temperature, the charger can run properly again
6	Vibration test	Whole vibration width 1.5mm and sweep 10 ～ 55100Hz/min in each X/Y/Z direction for 2 hours.	Can run properly, neither fall down the parts, no abnormal noise.
7	Drop test	Drop from 75cm height on the wood-made board.	Run properly and free from obvious damages.

Note 1 : Performance range is that the device can meet the normal charge time and ratio

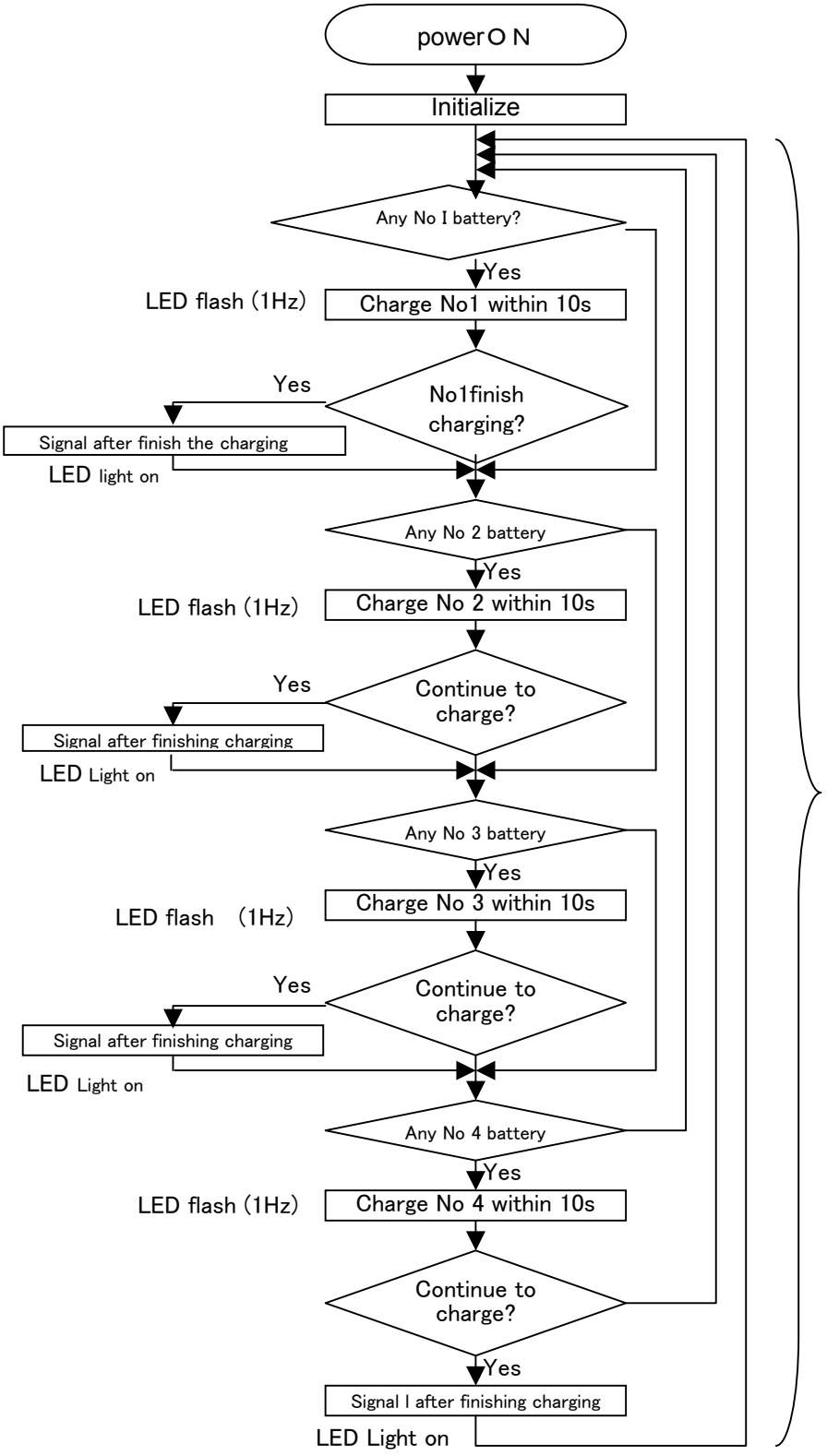
Note 2 : Operation range is that the device can charge completely, but it may not be able to reach the charge time and ratio

Note 3 : In any environment, no condensation

3-4. Mechanical features

No.	Item	Condition	Specification
1	The connection force of terminals	Pull the battery by push-pull gage	AAA 3 N±01N AA 1N±0.5N
		Push-in /pull-out battery 4000times	No defective connection
2	DC Jack operation force	DC Jack IN / OUT 6000 times	Operating force more than 1N

4. Procedure of charge



＊Checking procedure

After Power on, the procedure can start.

1. **Short circuit error on the terminal**
   voltage on the open terminal
   < 0.5V
   ↓
   LED flash rapidly (5Hz)
   ↓
   Reset the power, error eliminated.

2. **No battery installed**
   voltage on the open terminal > 1.56V
   or
   charge current < 65mA
   ↓
   LED off

3. **charge limiter (During charging)**
   charge circles> limiter
   ↓
   finish charge (LED light on)

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5. Accessories

No.	Standard parts	Specification	Volume	Reference
1	Instruction book	A3 paper, print on both side	1pcs	
2	Adaptor	12V / 1.66A	1pcs	Worldwide AC-power source is suitable for global use
3	AC Cable	YP-21/YC--13	1pcs	
4	Battery	Ni-MH 2000mAh~2500mAh	4	Option (with/without)
5	Blister package	Colorless transparent PETG	1	
6	Battery blister package	Colorless transparent PETG	1	
7	Blister Card	Color print	1	

6. Dimension & weight

6-1. Charger dimension & weight

(W) 91mm x (L) 131mm x (H) 33mm

* While power supply is not connected.

Weight: 180 g

6-2. Adaptor dimension & weight

(W) 50mm x (L) 85mm x (H) 35mm

Weight: 170g

6-3. AC Cable & weight

L: 1000mm @: Ho3VVH2-F 0.75/2C

Weight: 51g

7. Packing

Inner packing: blister packing

Out packing: Carton (24set in one carton)

Carton dimension: 602mm*504mm*450mm

3840Sets in 20” Container

7680Sets in 40” Container