



Specification Approval Sheet

Name: 12 slot AA/AAA LCD fast charger

Model: 01160

SPECS: I/P:DC 12V 1500mA

O/P: AA :DC 1.2V 2000mA×0.25×12CH

AAA:DC1.2V 1000mA×0.25×12CH

Approved By	Checkup	Make

Customer Confirmation	Signature	Date
	Company Name :	
	Stamp :	

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1 Features

1. It is a 12 channels PWM switching fast charger with MUC control. Its accurate voltage detection ensures no over-charging and under-charging.
2. 12 independent charging channels for individual charging and detection. AA and AAA can be mixed up when charging.
3. Suitable only for 1.2v AA/AAA NIMH/NICD battery.
4. Constant current charging mode with $-\Delta V$ detection, ensures fast charging.
5. 8 hours safety timer ensures extra safety.
6. Easy to use. Simply connect the adaptor to charger, plug charger into household electric outlet and insert battery into the battery compartment. Charger will start charging automatically.
7. Reverse polarity protection (mechanically) ensures charger and batteries would not be damaged when user inserting batteries with reversed polarity.
8. Large LCDs indicate charging status.
9. DC adaptor with wide AC input voltage 100-240V, Designed for worldwide usage.
10. AA and AAA, NIMH and NiCd can be mixed up when charging. The battery can be placed at any channel of the charger.

Note: Don't charge other types of battery except NiMH/NiCd Battery Pack mentioned in this datasheet

2 Electrical characteristics

2.1 Input Characteristics

- 2.1.1 AC adaptor Input Voltage
AC 100V~240V 50Hz/60Hz
- 2.1.2 Charger input Voltage
Rated input voltage: DC 9V~15V
Rated input Current: $\leq 2000\text{mA}$ (rated input voltage and normal charging)

2.2 Output Characteristics

- 2.2.1 No-loading voltage of charging channel
No-loading voltage: 0V
- 2.2.2 Rated Charging Current (Normal Charging)
AA: 0.5A
AAA: 0.25A
- 2.2.3 Trickle Current
AA: 0.05A
AAA: 0.025A
- 2.2.4 Charging Mode
Constant current charging
- 2.2.5 $-\Delta V$ Detection
 $-\Delta V$ detection: $\leq 15\text{mV} \times 12\text{CH}$
- 2.2.6 Discharge characteristics

Discharging current: the discharging current range is 0~800mA according the voltage and the quantity of the batteries

Discharge-stop conditions:the voltage of all battery is lower than 1V.

2.2.7 Reverse polarity protection

Reverse polarity protection current: 0A (mechanically)

2.2.8 Reverse leakage current

When there is no DC input,the reverse leakage current: $\leq 10\text{mA}$ (to hold the capacity of the charged batteries.)

2.2.9 Charging Timer Control

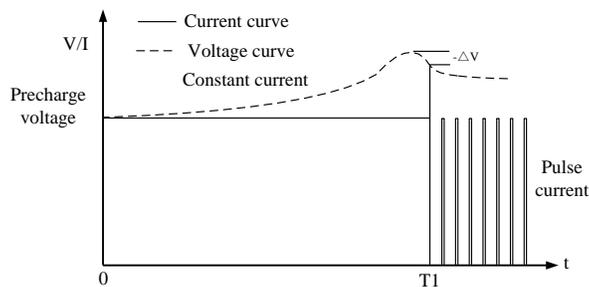
To ensure the maximum safety, Charger will stop charging after 8 hours.

2.2.10 Suitable battery

1.2v NiMH/NICD AA/AAA battery.

3 Charging Characteristics & LCD Indication

3.1Charging characteristic chart



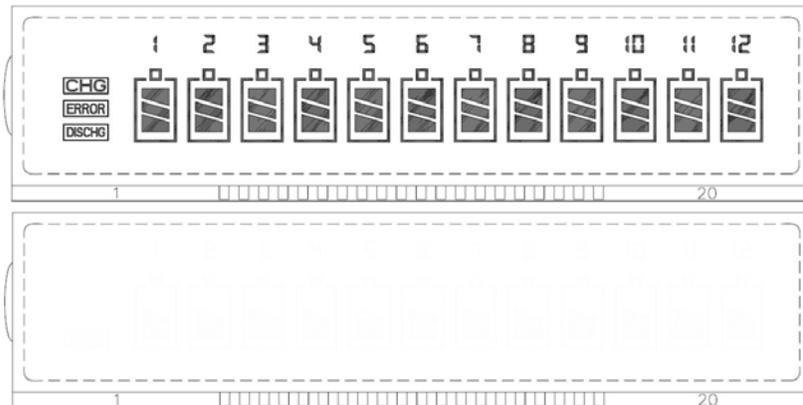
T0-T1: Constant current stage. When the charger detected the ΔV , the charging status turns to full charged stage. the LCD shows full capacity.

T1- : Full charged stage. The charging turns to trickle current status when be full charged(duty cycle rate: 10%)

3.2LCD indication

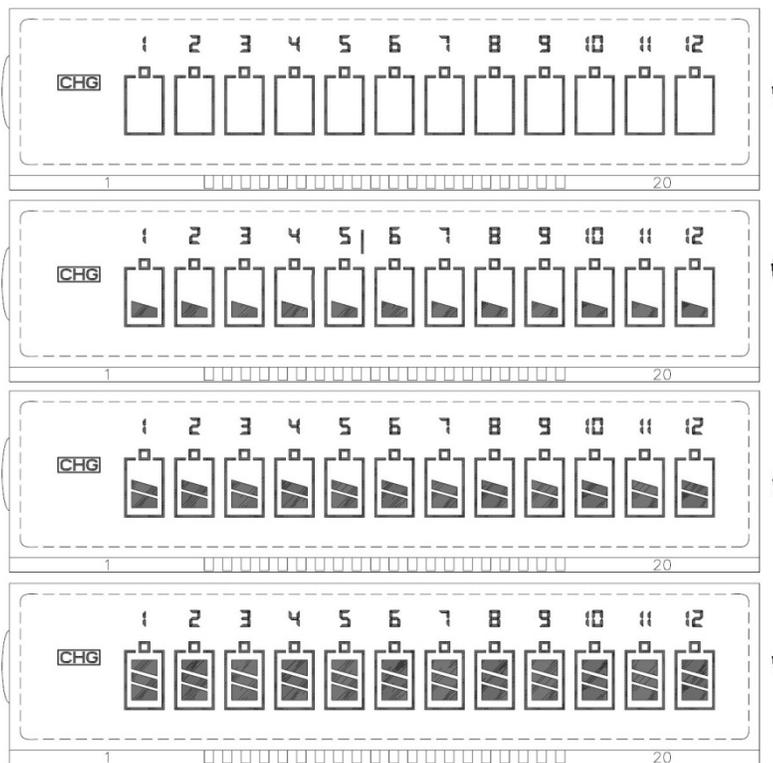
3.2.1 Charger startup status

LCD lighted on without any patterns display when connected to AC power in no-load condition.



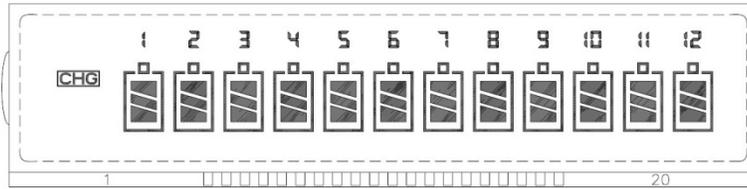
3.2.2 battery charging status:

inserting the battery, LCD display correspondingly shows the status of battery capacity .at the same time ,the CHG light on and the battery capacity grid jump up and down to show the charging status.



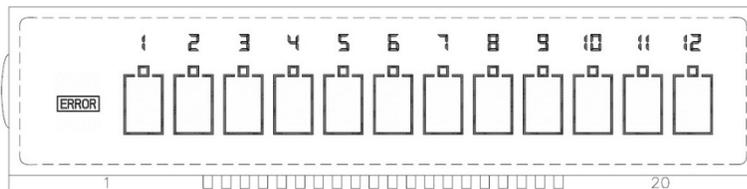
3.2.3 battery Saturated state:

When the corresponding battery is full charged, The LCD screen shows full capacity and no longer display jumping status, CHG only indicates trickle current charging.



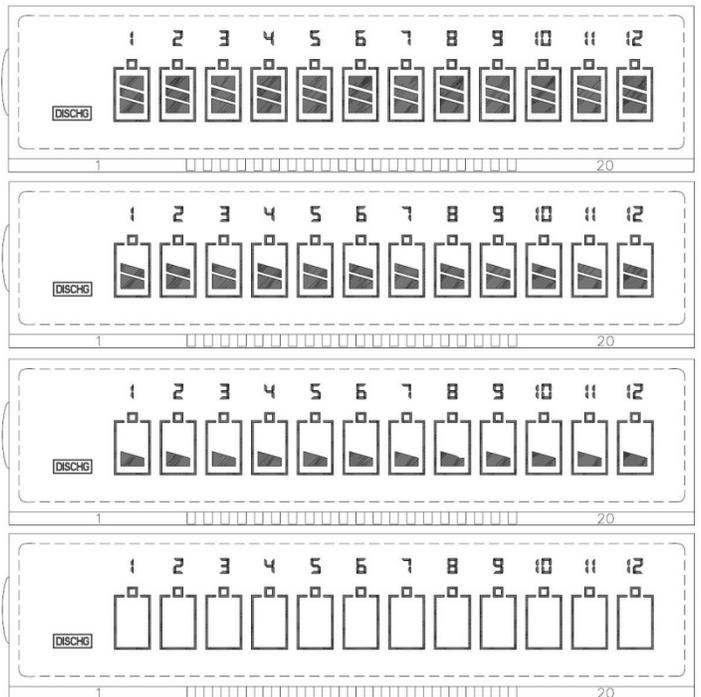
3.2.4 battery error status:

reverse battery, short circuit or alkaline batteries, for about 5 seconds ,LCD screen shows ERROR instructions .



3.2.5 battery discharge status:

inserting battery, press DISCHG button for 1 second to enter the discharge state, the LCD display correspondingly shows the status of battery capacity, at the same time, "DISCHG" discharging instructions lights up, battery capacity grid jump up and down to show the discharging status

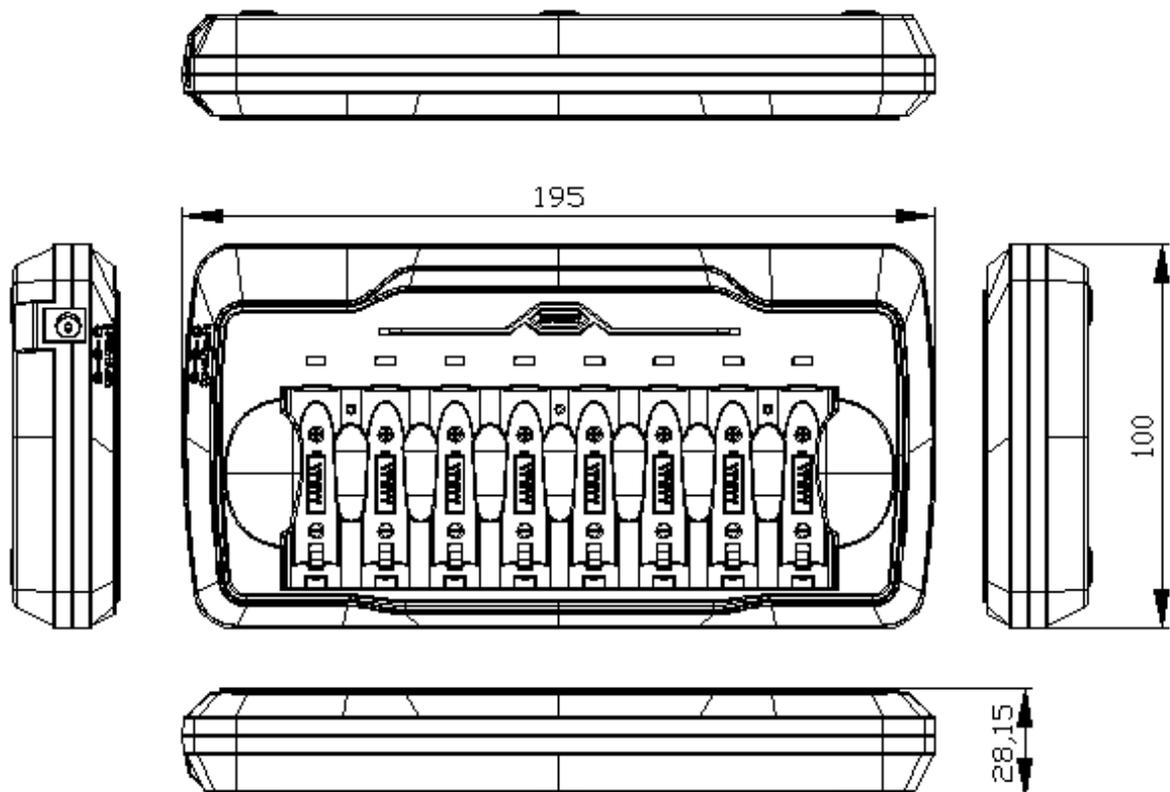


4 Environmental Requirements

- 4.1 Operating Temperature
0~+35°C
- 4.2 Operating Humidity
≤90% (Non-condensing)
- 4.3 Storage Temperature
-20~+80°C
- 4.4 Storage Humidity
RH≤85%
- 4.5 Atmospheric Pressure
70~106 KPa

5 Mechanical Requirements

- 5.1 Structural Drawing (See actual samples)





5.2 Adapter

Customized

5.2 Nameplate & Label

Customized

6 Reliability

1. **High Temperature Test:** Place the unpacked product into the test chamber and leave it at the temperature of $65^{\circ}\text{C}\pm 2^{\circ}\text{C}$ for 5 hours, then take it out and let it cool down to room temperature. Then check its appearance, dielectric strength, indication and electrical performances. Any damages or malfunctions are unaccepted.
2. **Low Temperature Test:** Place the unpacked product into the test chamber and leave it at the temperature of $-20^{\circ}\text{C}\pm 3^{\circ}\text{C}$ for 8 hours, and then take it out and let it recover back to room temperature. Then check its appearance, dielectric strength, indication and electrical performances. Any damages or malfunctions are unaccepted. **Constant Temperature and Moisture Test:** Place the unpacked product into the test chamber and leave it at the temperature of $40^{\circ}\text{C}\pm 2^{\circ}\text{C}$ and humidity of 90%~95% for 48 hours and then take it out.
3. Then check its appearance, dielectric strength, indication and electrical performances. Any damages or malfunctions are unaccepted.
4. **Vibration Test:** Test the charger at the frequency of 10~55Hz and amplitude of 0.35mm for 10 sweep cycles from each direction. Then check its appearance, dielectric strength, indication and electrical performances. Any damages or malfunctions are unaccepted.
5. **Drop Test:** Free fall from the height of 1m onto a 20mm thick hard wood surface from 6 different corners of the charger. Check its appearance, dielectric strength, indication and electrical performances. Any damages, malfunctions or abnormal sound inside the charger are unaccepted.

7 Appearance Requirement

Charger surface should be smooth without any scratches, glitches or other mechanical damages.

Silk print should be clear and intact. No corrosion should be on the exposed metal parts.

8 Volume & Weight

8.1 Volume

195*100*28.15mm

8.2 Weight

Net Weight: 120g



9 Sampling Standard

The default QA inspection is based on MIL-STD-105E standard and strictly implemented. Special procedure can be arranged upon customer's request.

10 Package

Blister card packaging, or customized

11 Cautions

1. DO NOT use it to charge inapplicable batteries except 1.2V AA/AAA NIMH battery.
2. DO NOT operate the charger when the temperature is higher than 40°C. We recommend you operate when the temperature is lower than 35°C. Batteries may get warm during charging.
3. Recommend to use Tenergy 1.2V AA/AAA NIMH battery for safety.
4. Keep it away from heat and combustion source during charging.
5. DO NOT use charger and batteries in any acidic, alkaline or corrosive environment.
6. DO NOT expose charger to rain, snow, water, gas, oil, etc.
7. DO NOT disassemble charger or battery.
8. DO NOT let children use charger without adult supervision.
9. Please cycle (charge and drain) the battery for several times before use if it's been stored for a long time as the false $-\Delta V$ may cause misdetection of full charge.