



1 Scope:

This specification is applicable to Pairdeer Battery Charger for 2 or 4 AA/AAA Ni-MH/Ni-Cd Batteries, PFC001, distributed by ZHONGYIN (NINGBO) BATTERY CO., LTD.

2 Product Features

2.1 Battery Type

Two (2) independent 2.8VDC channels, each channel charges two (2) batteries. Batteries could be charged only in pairs.

2.2 -dv cut off

The high sensitivity -dv detector stops charging once it detects the batteries are fully charged.

2.3 Defective and Non-rechargeable battery detection

This function protects the charger if you attempt to charge defective or non-rechargeable batteries. Charging alkaline batteries is not recommended and may cause battery leakage or even more hazardous.

2.4 Reverse Polarity Protection

The electrical circuit protects the charger and batteries from being damaged by incorrectly installed batteries.

2.5 Over Current Protection

Maintain a constant charging current during the charging cycle. (Value referred to section 3.1.2)

2.6 Timer Control Protection

The charger automatically detects the correct charging time and the main charging current changes to a trickle current. The charger always shuts off the main charging current and switches to trickle charge after 3 hours (Input DC12V) or 6 hours (Input 5VDC), regardless of the charging time.

2.7 Over Temperature Protection

Protect the batteries from being damaged by overheating ($60^{\circ}\text{C} \pm 10^{\circ}\text{C}$).

2.8 Low Battery Leakage Current

If the battery charger is not connected to input power and left in the charger, the charger will discharge the batteries using a pre-determined current. (Value referred to section 2.1.5)

2.9 Trickle Charge After Full Charge

After batteries are fully charged, a small current will be applied to the batteries. (Value referred to section 2.1.3)

2.10 Short Circuit Protection

If one attempts to charge shorted batteries, the indicator will flash alternately

2.11 Zero Voltage Jump Start

Restore the battery if the battery voltage is 0V

2.12 Charging Indicators

Red LED on : Charging

Green LED on :Fully charged and trickle charging.

Red LED Flashing :

- Defective batteries or Non-rechargeable battery
- Short circuit



3. Electrical Performance and Tests

3.1 Charging Unit

3.1.1 Input

Input voltage 12V (Adapter or car plug) or 5V(PC USB)

Input current: $I_{in} \geq 1A$

3.1.2 Charging current

12Vdc Input

AA*2/*4: 800-1000mA (Standard: 900mA)

AAA*2/*4: 400-600mA (Standard: 500mA)

5Vdc Input

AA*2/*4: 400-600mA (Standard: 500mA)

AAA*2/*4: 200-400mA (Standard: 300mA)

3.1.3 Trickle charge current

AA: 50mA $\pm 10\%$

AAA: 30mA $\pm 10\%$

3.1.4 Charging voltage

Two (2) independent 2.8VDC channels, each channel charges two (2) batteries. Charges only in pairs.

3.1.5 Battery leakage current

0.5mA MAX

3.1.6 Short circuit protection

$I_o < 10mA$

3.2 AC To DC Adapter

3.2.1 Input voltage

100~240Vac 47~63Hz

3.2.2 Output voltage

12Vdc $\pm 10\%$

3.2.3 Output current

$\geq 1000mA$

3.3 Car plug

3.3.1 Output voltage

10.8~16Vdc

3.4 PC USB

3.4.1 Output voltage

5Vdc $\pm 5\%$

3.4.2 Output current

$\geq 1000Ma$

4. Mechanical Tests and Requirements

4.1 Drop test

Drop from a height of 3 feet onto a concrete floor covered with 1/8 inch vinyl tile. Drop 3 times total, each time on a different product surface.

Expected result: The unit should still meet section 2.1.2.requirements

4.2 Surface

Damage and rusting are not permitted.

5 Operating and Storage Conditions

5.1 Operating Temperature

-5°C ~ 40°C / 20% ~ 90% RH (Non Condensing)

5.2 Storage Temperature

-25°C ~ 80°C / 10% ~ 95% RH (Non Condensing)

5.3 $-\Delta V$ Precision Control:

$\leq 5\text{mV}$

5.4 Time Control:

$3\text{h} \pm 10\%$

5.5 Temperature Control

$60 \pm 10^\circ\text{C}$

6 Safety and Environment Regulations

CE/ROHS compliant

7. Product Inspections

7.1 Inspections of all products

- Charging voltages (3.1.4)
- Charging current (3.1.2)
- LED indicators (2.12)
- Outside intense vibration
- Polarity of charging channel
- Surface (4.2)
- Charging AA or AAA at least once (@25 °C)

7.2 Inspections of selected products

- Over current protection (2.5)
- Over temperature (2.7)
- Drop test (4.1)



8. Cautions

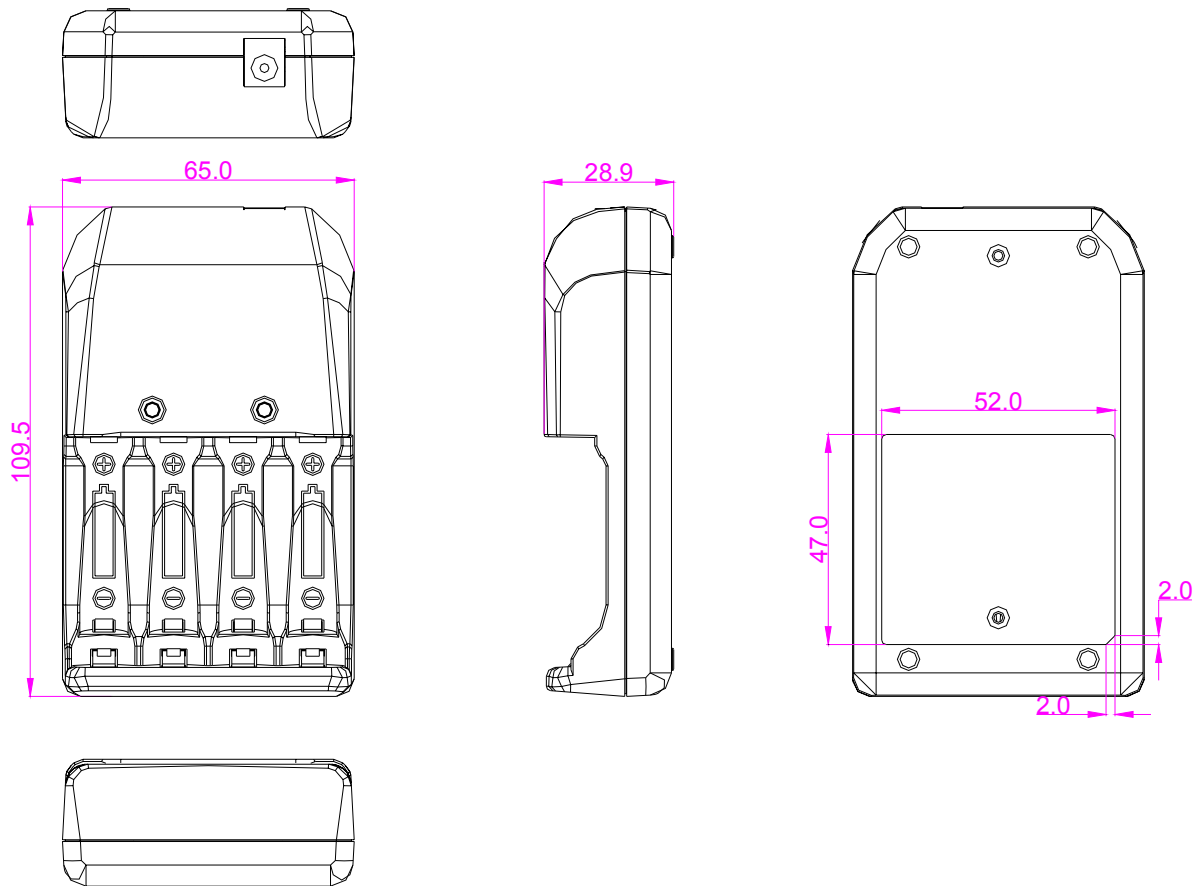
- Children should use product only under adult supervision.
- Mixing batteries of different capacities and sizes in the charger may influence the charging times or damage the batteries.
- Correctly insert the batteries and avoid reversing the +/- polarities.
- Cut off power after the batteries are fully charged.
- The charger is intended for use with Ni-MH/Ni-Cd batteries only. Charging other battery types may cause explosions, breakage, personal injury or property damage.
- Incorrect use may result in electric shock
- For indoor use only. Keep away from humid and hot places.
- Do not disassemble or reassemble the charger.

9. Charging Times

Battery Type	Battery capacity	Time	
		Input 12V	Input 5v
AA Ni-MH	2000mAh	2.7h	4.8h
AA Ni-MH	1500mAh	2h	3.6h
AAA Ni-MH	600mAh	1.4h	2.4h
AA Ni-Cd	1000mAh	1.3h	2.4h
AA Ni-Cd	800mAh	1.1h	2h
AAA Ni-Cd	300mAh	43min	1.2h

10. Mechanical Drawing

Unit: mm



11 Figure of Unit Product Sales Packaging



