MIBOXER

Where There is Miboxer There is Power

User Instruction

Model No.: C2-4000

Introduction

C2-4000 is a charger, capable of charging and charge-discharge-charge batteries. The charger automatically adapts the charge and discharge current, according to characteristics of each battery. During the charging process, it will automatically determine the battery capacity, internal resistance, the remaining charging time, the battery percentage, charging voltage, charging current, temperature and so on. The charger is fully compatible with Li-ion, IMR, INR, ICR, Ni-MH, Ni-Cd, LiFePO4 batteries. The charger has a backlit LCD display, which can display charging/charge-discharge-charge parameters and charging status of the battery.

The charger will select different charging methods automatically according to different battery types.

For Li-ion, IMR, INR, ICR, LiFePO4 batteries, the charger will apply normal Li-ion battery charging mode (trickle, constant current, constant voltage), for Ni-MH / Ni-Cd battery, the charger will apply -△V full charging capacity termination method. Each channel is fully independent, and has the function of calculating the battery capacity through discharge.

Features

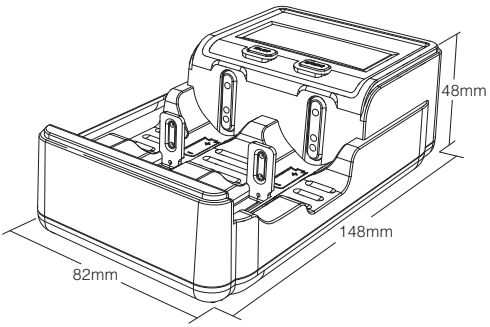
- Compatible with batteries of Li-ion (4.2v / 4.35v), LiFePO4 (3.6v), Ni-MH/ Ni-Cd (1.48v) ;
- Applicable to different types of cylindrical rechargeable Li-ion batteries;
- Maximum 1.5A/ channel fast charging;
- Manually set up charging/charge-discharge-charge current;
- High precision reference voltage source calibration;
- Automatically stop charging when battery was fully charged;
- With reverse-battery and short circuit protection function;
- Intelligent temperature control function;
- Automatically detect the battery and display the state of charging;
- Automatically measure battery internal resistance;
- Measure the battery capacity during charging;
- Measure the actual capacity of the battery through charge-discharge-charge ;
- Two fully independent slots, supports charging/charge-discharge-charge for two different battery types.
- Support small capacity battery charging;
- Support Li-ion battery repair function;
- Support DC12V car charger mode;
- Made of PC fire retardant material;
- Excellent heat dissipation and circuit design;
- 1 year warranty.

Parameters

Input voltage: DC 12V 2A ⊖-(•-⊕
Output voltage: 4.20V±1% /4.35V±1% / 3.6V±1% / 1.48V±1%
Output current: Li-ion maximum 2*1.5A
Ni-MH/Ni-Cd maximum 2*1A
Products weight: 215g

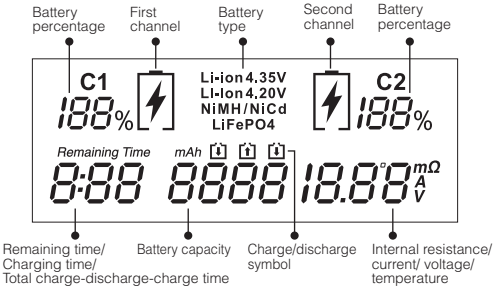
Compatible with:
Li-ion(4.2V/4.35V) (IMR/INR/ICR) / LiFePO4(3.6V)
10340 / 10350 / 10440 / 10500 / 12340 / 12500 12650 / 13450 / 13500 / 13650 / 14350 / 14430 14500 / 14650 / 16500 / 16340(RCR123) / 16650 17350 / 17500 / 17650 / 17670 / 18350 / 18490 18500 / 18650 / 18700 / 20700 / 21700 / 22500 22650 / 25500 / 26500 / 26650

Ni-MH / Ni-Cd (1.48V)
AAAA / AAA / AA / A / SC / C / D



LCD display introduction

Rich user interface display, the LCD screen show the states of the voltage, current, remaining charging time/charging time, battery type, internal resistance, battery capacity, temperature and battery percentage, which let you understand the battery charging state more intuitively.



Battery percentage

After battery was placed in one of the charging slots, the charger will display the battery percentage automatically.

Remaining time / charging time / total charge-discharge-charge time

Remaining Time 8:88 Constant shinning, means the remain charging time;

8:88 Constant shinning, means the total time.

Note: During battery discharge mode, the time reading means the cumulative time.

Battery Capacity

" *mAh* " Flickering:
The data indicates the accumulated capacity volume of the battery which was charged by the charger.

" *mAh* " Constant shinning:
The data indicates the battery' s total capacity.

Internal resistance / current/voltage / temperature

Put the battery in any channel, the charger will display the battery internal resistance automatically.

Switch display	3.20v	1.50A	123mΩ	28C
When charging	Charging voltage	Charging current	Internal resistance	—
When fully charged	Battery voltage	000A		—
When discharging	Discharging voltage	Discharging current		Temperature

Change information displayed

A short press on the " SLOT " key, will switch between the data of C1/C2 displayed.

LCD backlight

The LCD display backlight turns off after one minute of no operation. If you want to turn on the LCD backlight please press any key.

Battery detection and error reporting

Battery activation and detection	Error warning
Battery placing reversely	Current channel shows " Err "
Battery short circuited happened	
Place the battery correctly, after testing OK, the charger goes into the normal state of charge.	

Operating Instructions

1. Put the battery in any channel, the charger starts to detect the related data of the battery and display it on the LCD screen. After 5 seconds, the most suitable current charge (maximum 1.5A, minimum 0.1A) is automatically selected according to the battery characteristics.
2. "*mAh*" and "🔋" flickering, means the charger is charging.
3. When the battery is fully charged "🔋" constant shinning, and show "FULL", battery percentage "100%".

Battery type selection

Long press the SLOT key "8888" is flickering, press it again within 3 seconds until "**LI-Ion 4.20V**" is flickering, and then press the MODE key to choose the type of battery. Automatic exit after 3 seconds.

⚠ Note:

The charger cannot automatically identify LiFePO4 / 4.35V Li-ion batteries, the battery type should be set manually.

If LiFePO4 battery type was not manually set for LiFePO4 battery, the battery will be charged as Li-ion 4.2V battery type. In this case there is a risk of explosion, due to battery overcharge.

Set the charging / discharging current

1. Press the MODE key, the current symbol (-.--A) flickering,
2. Press the MODE key again, select the charging current, will automatically exit after 3 seconds.

	Li-ion / LiFePO4	Ni-MH / Ni-Cd
Charging current range	0.2A / 0.3A / 0.5A / 0.8A / 1.0A / 1.5A / Default current	0.1A / 0.2A / 0.3A / 0.5A / 0.8A / 1.0A / Default current
Discharging current range	0.2A / 0.3A / 0.5A / 0.8A / 1.0A / 1.5A / Default current	

***Default current:**

The Current symbol ***A*** flickering fast, means the current is default current. the charge-discharge-charge current (Max 1.5A, Min 0.1A)

Charge-discharge-charge to measure the battery capacity

Hold the [SLOT] key till " 8888 " flickering, and press the [MODE] key within 3 seconds, to switch measurement functions.

"[1] [2] [3]" disappear means measurement functions shut down.

"[1] [2] [3]" display means measurement functions turn on, the charger will charge the battery, and then discharge, real-time calculation of battery capacity and save the data, after the end of the discharge, once again the battery is full and stop.

Intelligent temperature control

- When the charger is in the discharge state, the charger turns on the fan.
- When the temperature of the charger exceeds 90℃, the charger will turn on the temperature protection function, automatically stop the process of charge-discharge-charge , LCD screen display "Err", and the "90C" will flickering。

Note: After the charger cools down, the charge-discharge-charge process stops, and should be re-initiated manually.

Time display

When the charger begin to measure the battery capacity in discharge, total three periods,hold [MODE] key " 8:88 " flashes, short press [MODE] key to switch view time.

8:88 Display status	Often show	Faster show	Fast show	Slow show
Corresponding time	Charge and discharge total time	The first stage Charging time	Discharge time	The third stage Charging time

Note: When charging the 4.20V Li-ion in the first stage, the remaining charge time is displayed. Other batteries show the cumulative time of charge.

Function Description

Automatically set the charging current

After a battery is inserted into any of the charging slots, the charger will automatically set the most suitable charge current according to the battery characteristics. MAX 1.5A / MIN 0.1A.

- Li-ion(4.2V / 4.35V) battery
  - When the battery voltage is **below 3.60V**, The charger automatically selects the appropriate trickle current according to the battery characteristics.
  - When the battery voltage is **higher than 3.60V,** The charger automatically selects the appropriate constant current according to the battery characteristics.
- LiFePO4 battery
  - When the battery voltage is **below 3.30V**, The charger automatically selects the appropriate trickle current according to the battery characteristics.
  - When the battery voltage is **higher than 3.30V**, The charger automatically selects the appropriate constant current according to the battery characteristics.

Note: The default trickle current maximum is 800mA.

Charge curve (only 4.20V Li-ion batteries)

- Put the Li-ion battery(under 3.4V)into the charger, after fully charged, the charger will automatically store the battery curve.
- Put the Li-ion battery(above 3.4V)into the charger, after fully charged, the charger will not store the battery curve.

Note: The charger can only store two charging curves at the same time. When there is a third charge curve to be stored, the charger will automatically cover the first charge curve.

Charging to measure battery capacity

- "*mAh*" flickering, the charged cumulative capacity is displayed,
- "*mAh*" constant shinning, the battery total capacity is displayed, (The total capacity of the battery is calculated based on the accumulated capacity.

Note: When the total capacity of the LCD display and the actual capacity of the battery is different, please discharge the battery and recharge it again, the charger will store the current battery charging curve, so that the total capacity of the battery can be accurately measured at the next charge, this function is only valid for 4.20V lithium battery.

Battery activation function

If the charger will identify a protected lithium battery that needs to be activated due to under-voltage, it will attept to activate it in accordance with the standard charging method.. If the charger will not be able to activate the battery, it will be considered to be damaged, corresponding channel prompt "Err" and stop charging.

Lithium battery repair function

When the lithium battery was discharged to 0V, the charger will apply the battery trickle charge to repair the battery. The battery voltage will slowly rise, and once it is fixed, the charger will enter the normal charging mode. If the battery voltage can not be raised for a long time, the charger will identify it as damaged battery, corresponding channel prompt " Err " and stop charging.

When the battery is fully charged, it will stop charging and prevent overcharge

When the battery was fully charged, the LCD screen will display " FULL " Battery capacity percentage "100%" Charging current "0.00A" Charger automatically stops charging to prevent the battery from overcharging and shortening the battery Life.

High sensitivity -△V to determine the battery charging saturation (Ni-MH / Ni-Cd battery)

For Ni-MH / Ni-Cd battery, the charger will use -△V method to determine the saturation function. It is an accurate method to determine end of charge, that allows nickel-metal hydride / nickel-cadmium batteries to achieve full saturation without overcharging.

Matters needing attention

1. The charger is only limited to charge the lithium ion, IMR, INR, ICR, LifePo4 and Ni MH / Ni Cd rechargeable battery: charging different battery types may cause an explosion, splitting, battery leakage, personal injury or property damage.

2. Using environment: using temperature -10~40℃, storage temperature: -20~60℃, please do not store the charger directly in the sunlight, near the heating equipment or other high temperature sources.
3. The charger is suitable for adults over 18 years old; children using the charger must be under the supervision of adults.
4. It is prohibited to use this charger with batteries that changed its shape, color or started leaking.
5. Do not use this charger to charge disposable batteries, such as Zinc-Carbon (carbon zinc battery), disposable lithium metal batteries, CR123A batteries, CR2 batteries, and other batteries which don' t support charging, otherwise it may cause the risk of fire or explosion.
6. Do not charge the defective IMR battery, or it may cause a short circuit and cause an explosion.
7. When the charger starts working, it should not be placed unattended. If charging process suddenly stopped, you should not use the charger, and read the instructions carefully.
8. Do not disassemble, assemble or repack the charger, which may cause damage to the charger or even explosion.
9. The charger should be used in a well ventilated area. Do not use or put the charger in a damp environment. Do not place inflammable and explosive substances in the operating area.
10. When the charger is not used, battery should be removed, and the power cable should be pulled out.
11. Do not insert conductive materials or metal objects into the charger, in order to avoid the short circuit or explosion.
12. Avoid mechanical vibration and shock to prevent damage to the charger
13. Please carefully read the label on the charger; ensure that the battery is placed correctly when charging.
14. Please do not overcharge or over discharge battery, please charge the battery as soon as possible when it is used up.
15. Do not expose the charger to rain or snow.
16. Do not touch the heating surface, when the charger full power, high power charge and discharge, rechargeable batteries or charger will give out heat.

Warranty service

MIBOXER Aftersale warranty service is only for the products purchased from authorized sources, this rule is compliant to all products.
MIBOXER Any DOA / defective product can be exchanged for a replacement through a local distributor/dealer within the 15 days of purchase. After 15 days, all defective / malfunctioning products can be repaired free of charge for a period of 12 months (1 year) from the date of purchase.
Beyond 12 months (1 year), a limited warranty applies, covering the cost of labor and maintenance, but not the cost of accessories or replacement parts.

Free warranty does not apply to the following conditions:

1. Broken down, Reconstructed and / or Modified by unauthorized parties.
2. Damaged from wrong operations (i.e. Reserve polarity installation, Installation of non-rechargeable batteries, or Violation warning operation).
3. Damaged by batteries leakage.

For the latest information on MIBOXER products and services, please contact a local MIBOXER distributor or send an email to sales@miboxer.com.

Packing list

Name	Quantity
C2-4000 Charger	1 PC
User Manual	1 PC
AC TO DC 12V/2A Power Supply	1 PC

Made in China

Scan for more

MiBoxer Hi-Tech Co.,Ltd.

Add: Floor 2, Buiding D, Fusen Technology Park, Hangcheng Road,
Bao'an District, Shenzhen City, Guangdong Province, China
E-mail: sales@miboxer.com
http://www.miboxer.com