

MIBOXER

Where There is Miboxer There is Power

User Manual

Model No.: C4-12

Introduction

C4-12 is a highly advanced battery charger, that includes a power bank function. The charger automatically adapts the charge current according to characteristics of each battery. During the charging process, the charger automatically determine the battery capacity, internal resistance, 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 batteries.

The charger has a backlit LCD display, which can display charging 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 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 $-\Delta V$ full charging capacity termination method.

Features

- Compatible with Li-ion (4.2v), Ni-MH/ Ni-Cd (1.48v) batteries;
- Applicable to different types of cylindrical rechargeable Li-ion and Ni-MH/Ni-Cd batteries;
- Powerbank function, using lithium batteries;
- Maximum 3A/channel fast charging;
- Manual current selection;
- High precision reference voltage source calibration;
- Automatically stop charging when battery was fully charged;
- With reverse-battery and short circuit protection function;
- Automatic adaptation to input power;
- Intelligent battery temperature control function;
- Automatically detect the battery and display the state of charging;
- Automatic battery internal resistance and capacity measurement;
- Four fully independent slots, supports charging of two different battery types;
- Support small capacity battery charging;
- Support Li-ion battery repair function;
- Supports DC12V car charger mode;
- Made of PC fire retardant material;
- Excellent heat dissipation and circuit design;
- 1 year warranty.

Parameters

Input voltage: DC 12V / 5A \ominus \oplus

Output voltage: $4.20V \pm 1\%$ / $1.48V \pm 1\%$

Output current: Li-ion maximum 4*3A

Ni-MH/Ni-Cd maximum 4*1A

USB Output: DC 5V / 1A

Products weight: 305g

Apply to:

Li-ion (4.2V) (IMR/INR/ICR)

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)

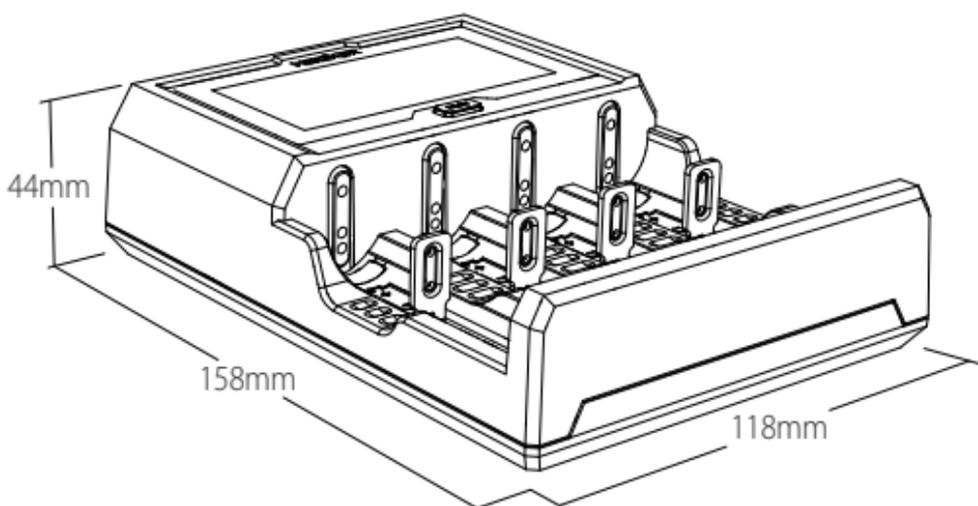
AAA / AAA / AA / A / SC / C / D



Note

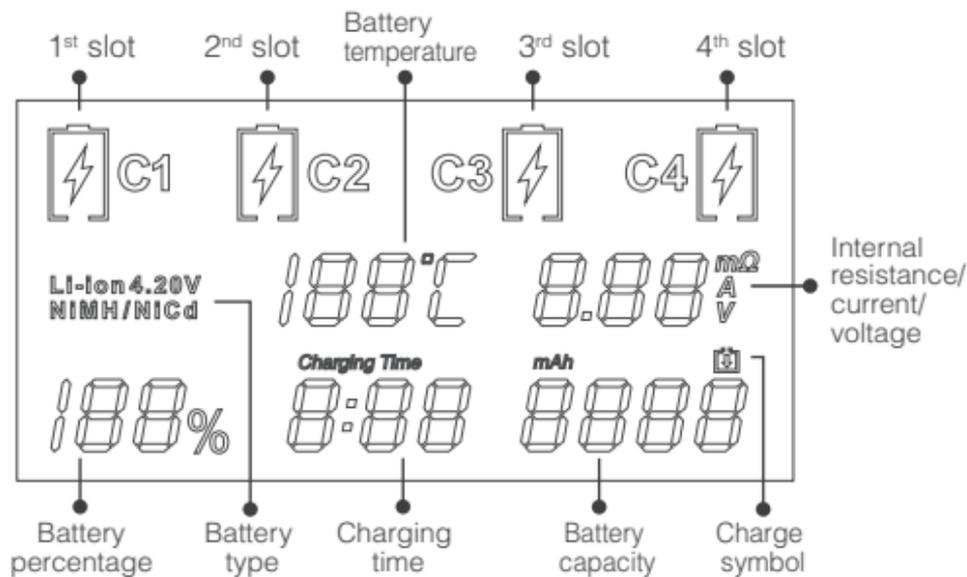
The charger is not compatible with LiFePO4 batteries; otherwise batteries will be overcharged and may explode.

For the 4.35V Li-ion battery, charger considers 4.20V as full charge in defaults.



LCD display introduction

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



Battery percentage

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

Battery Capacity

“mAh” Flickering:

The data indicates the accumulated capacity volume of the battery which was charged by the charger.

“mAh” Constant shining:

The data indicates the battery's total capacity (the total capacity of the battery which was calculated according to the cumulative capacity by charger).

Voltage / internal resistance / current

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

Switch display	3.88 _v	30 ^{mΩ}	3.00 ^A
When charging	Charging voltage	Internal resistance	Charging current
When fully charged	Battery voltage		000 ^A

Switch the display channels

Short press **SLOT** key to switch the channel (C1 / C2 / C3 / C4) information display.

LCD backlight

Press the **SLOT** button to turn on the LCD backlight, if there is no operation, LCD backlight will gradually darken in 1 minute.

Battery detection and error alarm

Battery activation and detection	Error warning
When the battery is reversed	Current channel shows "Err"
When the battery is shorted	
Correctly put into the battery, check is OK, enter into the normal state of charge.	

Operating Instructions

1. Put the battery in any channel, the charger starts to detect battery-related data and display it on the LCD screen. After 5 seconds, the most suitable current charge (maximum 3.0A, minimum 0.1A) is automatically selected according to the battery characteristics.

2. “ ⚡ ” and “ ⏴ ” flashing, The charger is charging.
3. When the battery is full “ ⚡ ” “ ⏴ ” will show and show “ *FULL* ” , Battery percentage show “ *100%* ” .

Set the charging current

1. Long press **SLOT** key, The current (-.- -A) Flashing,
2. Press the **SLOT** button briefly to select the current.
3. To exit current selection mode wait 3 seconds, or long press the **SLOT** key.

	Li-ion	Ni-MH / Ni-Cd
The charging current range (unit: A)	0.1/0.2/0.3/0.5/0.8/ 1.0/1.5/2.0/2.5/3.0/ Automatically	0.1/0.2/0.3/0.4/0.5/ 0.6/0.7/0.8/0.9/1.0/ Automatically

*Automatically:

The current symbol “ **A** ” flash, expressed as automatic setting. The maximum charge current is 3.0A and the minimum is 0.1A.

Function Description

Automatically set the charging current

Put the battery into any channel, the charger will automatically select the most suitable current charge according to the battery characteristics.

The maximum charge current is 3.0A and the minimum charge current is 0.1A.

Input power

● The charger is suitable with DC12V / 5A standard power supply, it is highly recommended to use the original standard power supply adapter.

● When using a non-standard power supply that cannot provide the charger with sufficient current (3A).

The charger will automatically adapt to the power supply, and the maximum output power of 80% of the charger power supply.

Intelligent temperature control function

If during a charging process a battery temperature reaches more than 60°C, the charger will reduce the charging current in order to prevent damage to the battery.

If battery temperature reaches temperature more than 70°C, the charger will stop charging the battery and prompt "Err".

Activate the battery function

When a protected lithium battery requires activation the charger will attempt to perform battery activation automatically, according to the standard charging method. If the charger can not activate the battery will be considered to be damaged or responding channel prompt "Err" and stop charging.

Repair lithium battery function

When the lithium battery is discharged to 0V, the charger will use trickle charge method to repair, the battery voltage will slowly increase, repair OK, enter the normal charging mode. If the battery voltage can not be raised for a long time, the charger will display "Err" and stop charging.

When the battery is full, the charger will immediately stop charging automatically to prevent overcharge

When the battery is fully charged, the LCD screen will display "FULL" battery capacity percentage "100%" charge current "0.00A" charger automatically stop charging, to prevent the battery because of overcharge and shorten the battery life.

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

A high sensitivity $-\Delta V$ battery charging termination method is in use for Ni-MH/Ni-Cd batteries. It can automatically detect when the battery has reached full capacity.

Power Bank function (Only 4th slot)

1. If the charger is not connected to external power supply, and battery voltage is greater than 3.30V in any channel, the charger will work in the mobile power mode, providing USB maximum output of 5V / 1A.
2. LCD display power supply battery channel and USB output current.
3. when the battery is not enough to provide the power required for USB load, LCD backlight flash 3 times, suggesting that low pressure, into sleep.
4. the USB output current is 0, the charger will enter the sleep state after 20 seconds, short press the **SLOT** button to wake up the charger and turn on the USB output.

Note: Do not use a small capacity lithium battery for mobile power output.

Precautions

1. The charger is limited to lithium-ion, IMR, INR, ICR and Ni-MH / Ni-Cd rechargeable batteries. Charging other batteries may cause explosion, battery rupture or leakage, personal injury or damage to property.
2. the charger cannot charge the LiFePO₄; otherwise the battery will get damaged or even exploded. For the 4.35V Li-ion battery, charger considers 4.20V as full charge in defaults.
3. Use of the environment: temperature -10~40 °C , storage temperature: -20~60 °C . Do not use or store the charger in the event of a fire, direct sunlight, hot equipment, or other high temperature.
4. The charger is intended to be used by adults over 18 years of age, children must be under the supervision of adults to use.
5. If the battery has leakage, expansion, skin damage, color or deformation, etc., prohibit the charge and discharge.
6. Do not use this charger to charge the disposable battery, such as Zinc-Carbon, one-time lithium metal battery, CR123A battery, CR2 battery, and other batteries that do not support charging material, otherwise it may cause a fire or explosion.

7. Do not charge the incomplete IMR battery, otherwise it may cause the charger to short circuit and cause an explosion.
8. When the charger starts to work, can not be left unattended. If any problems are found, stop the operation immediately and read the instructions carefully.
9. Do not disassemble, assemble or modify the charger, may cause damage to the charger or even explosion.
10. Please use it in indoor ventilation. Do not allow the charger to be used or placed in a humid environment. Do not place flammable and explosive substances in the operating area.
11. When not using the charger, remove the battery and remove the charging cable.
12. Do not use conductive material or metal objects into the charger inside, to avoid the occurrence of short circuit explosion charger accident.
13. Avoid mechanical vibration and shock, to prevent damage to the charger.

14. Carefully read the electrode mark on the charger and make sure that the battery is properly seated when charging.
15. Do not overcharge or over-discharge battery, please charge as soon as possible after the battery was discharged.
16. Do not expose the charger to rain or snow.
17. Do not touch the heating surface, full power, high power charge and discharge, rechargeable battery or charger itself may be hot.

Warranty service

MIBOXER Aftersale warranty service is only for the products purchased from authorized sources, this rule is compliant to all products.

MIBOXER products have after-sales warranty service. In the purchase of this product within 15 days, if any quality problems can be asked to the dealer free replacement. In the purchase of this product enjoy up to 1 year free warranty service.

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.

The free warranty does not apply to the following:

1. Man-made destruction, dismantling, modification of this product.
2. Incorrect operation results in damage to the product (such as refitting the battery, putting it into a non-rechargeable battery, or violating the warning).
3. Battery leakage causes product damage.

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
C4-12 Charger	1 PC
User Manual	1 PC
AC TO DC 12V / 5A Power Supply	1 PC



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