

C4^{evo}

6 CHANNELS

使用说明



ISDT

感谢您购买ISDT C4 EVO充电器。

C4 EVO是一款几乎能充所有类型电池的智能充电器，

如NiMH, NiZn, Lilon, LiFe, LiHv电池，性能优异。

配有高可视角度IPS显示屏，详尽的参数、任务进程详细显示。

各通道可放入不同类型电池，执行不同任务，独立工作，

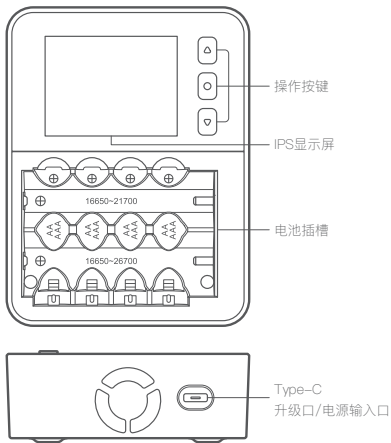
并且能够针对不同类型的电池，采用不同的充电特性和充电方式。

警告与安全提示

在使用本产品之前,请阅读这些说明和警告。

- 请勿使用非充电电池，及表面绝缘层已破损的电池。
- 使用过程中请确保充电器远离热源及潮湿环境，并注意通风散热。
- 请正确设定电池充放电的参数，错误的设定可能导致意外发生。
- 请勿让儿童操作充电器。

按键/接口



产品参数

型号:	C4 EVO
最大输入功率:	36W
支持电池数量:	1~4节圆柱形电池
支持电池尺寸:	AAA, AA, 10440, 10500, 12500, 13500, 14500, 14650, 16650, 17650, 17670, 18650, 18700, 20650, 20700, 21700, 22650, 26650, 26700
支持电池类型:	NiMH, NiZn, Lilon, LiFe, LiHv
工作电压范围:	5~12V (支持QC、PD协议)
充电电流范围:	0.1~3.0A (横向), 0.1~1.5A (纵向)
放电电流范围:	0.1~1.5A (横向), 0.1~1.0A (纵向)
工作模式:	充电、放电、存储、循环、分析、激活、销毁
显示屏:	320x240 IPS LCD
蜂鸣音:	多音调
温度传感器:	6个
工作温度:	0~40°C
反接保护:	横向硬件防反接、纵向物理防反接
温度保护:	支持
过容保护:	支持
尺寸:	120x92x34mm
重量:	约195g

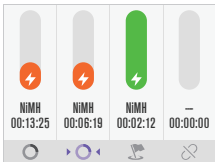
* 横向电池槽摆放尺寸最长为70mm

任务设定

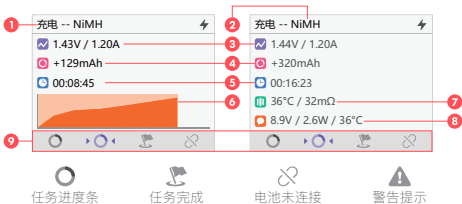
在此充电器中，可以以多种组合方式对4节AA或4节AAA或1节16650~21700和1节16650~26700电池进行充电、放电、存储、循环、分析、激活和销毁等操作。

自动模式

1. 将Type-C电源线接入C4 EVO电源输入口。
2. 在将电池正确放入插槽后，充电器检测到电池，将会从待机页面跳转到任务设置界面，蜂鸣器每隔1.5秒会响一次，如果5秒内用户没有对充电器进行任何操作，充电器将会自动开始充电。显示屏将会显示如下充电状态，如右图：



此时，短按中间按键可以切换显示信息。如下图：



界面释义

- | | |
|---------------|-------------|
| 1. 当前插槽工作状态 | 6. 电量曲线记录 |
| 2. 当前插槽电池类型 | 7. 此电池内阻及温度 |
| 3. 当前输出电压及电流 | 8. 充电器状态 |
| 4. 此电池已充/已放电量 | 9. 任务状态预览栏 |
| 5. 已工作时间 | |

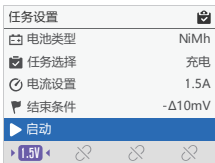


* 在任务快速预览栏中，可以直观显示各插槽任务状态，在使用过程可以通过上下按键切换显示各通道信息。

手动设置模式

将电池放入匹配的插槽中，充电器将在三次蜂鸣声后为电池执行自动充电，在此期间，短按上下任意键，充电器将停留在任务设置界面，可手动修改各项参数，如右图：

* 手动修改完成十秒后会自动开始任务。



电池类型	NiMH, NiZn, Lilon, LiFe, LiHv
任务选择	充电、放电、存储、循环、分析、激活、销毁
电流设置	横向通道0.1~3.0A，竖向通道0.1~1.5A

如何选择电池类型

通常在电池外皮上会有电池类型或额定电压字样,可对照上表判断电池类型。充电器自动判断电池类型依据检测到的电压,对于自动识别类型错误的电池,请手动修正。

* NiZn、LiHv电池需要手动选择类型。

充电器预设电池类型及任务参数

	NiMH	NiZn	Lilon	LiHv	LiFe
额定电压	1.20V	1.5V	3.70V	3.80V	3.30V
满充电压	1.65V	1.90V	4.20V	4.35V	3.65V
存储电压	✕	✕	3.70V	3.80V	3.20V
放电电压	0.90V	1.30V	3.10V	3.30V	2.90V

如何确定充电电流

在充电前必须先了解清楚所用电池允许的最大充电电流,使用过大的电流对电池充电会对电池的寿命造成影响甚至损坏,过大的电流充电也会造成充电过程中电池发热甚至爆炸。

电池充放电能力一般以C数来标识,充电C数乘以电池容量就是电池所支持的最大充电电流,例如1000mAh的电池,标识充电能力为0.5C,那么最大充电电流为: $1000 \times 0.5 = 500\text{mA}$,也就是最大支持0.5A充电。

对于锂电池而言,如果无法确定电池所支持的充电C数,为了安全起见请将充电电流设定在不大于1C的值。

充电C数与充电时间的参考关系: 充电时间 \geq 60分钟/充电C数
(例如使用1C充电,充电完成时间大约需要60~70分钟)

由于电池转换能效的差异,此时间有可能会有所延长。

存储

当锂电池需要长时间存放不使用时,建议采用此模式。

选择存储功能时,电池如果低于预设存储电压,将自动进行充电任务。

电池电压如高于预设存储电压,将自动进行放电任务。

循环

此模式下可以充/放循环30次。循环模式可消除可充电电池的记忆效应。

分析

当您怀疑电池性能一般的时候,可以使用此功能来分析目前电池的性能。

此功能还可用于识别和匹配电池的工作容量。

激活

当NiMh/NiCd电池过放到0V时，这时可选择激活功能，即可对电池进行修复，如经过多次激活仍无法充电，建议更换有问题电池。电池激活是通过对电池的充电-放电-充电的循环方式，通常使用很低的速度将电池充饱。循环过程同时活化电池，有时需要2-3个循环才使电池完全被激活。

内阻测量功能

本充电器具有电芯内阻测量功能，在充电任务开始后大约10秒钟可以测量并计算出电池内阻，电池内阻在不同电量时会存在差异，一般来说电量较多时测得的内阻值会较低。充电器对电池进行内阻测量时，会瞬间调整充电电流，因此充电过程中发现电流有突变属于正常现象。

由于内阻测量方式的差异，无法实现类似于专业内阻测量仪绝对数测量。充电电流的大小对内阻测量的准确性有一定影响，大容量低内阻的电池，需要较大的充电电流方能准确测量出内阻。

任务结束判断

当任务执行过程中时，在任务快速预览栏中会显示当前任务进度，而当任务完成后将会显示 。

电池在充放电结束后，由于性能的差异，电压会存在一定的回落，这属于正常现象。并且随着电池循环次数增多，性能逐步下降，这一现象会更明显。用更大的充电电流进行充电，也会导致充满后电压回落的现象更加明显。

电池短路及反接保护

当装入电池反接或短路时，充电器将会连续报错，直至取下电池，相应的插槽状态将显示如下画面：



系统设定

在充电器所有电池插槽空置状态下，长按中间按键即可进入系统设置界面。

音量

设置有高、中、低及关闭四个选项。当设定为“关”时，将关闭操作提示声，但不关闭错误提示声。

主题

选择该项，可设置背景色为明亮/暗黑。

系统设置	
 音量	低
 背光亮度	低
 主题	明亮
 容量限制	关
 扩容充电	关
 语言	简体中文
 系统信息	
 恢复出厂设置	
 返回	

容量限制

设置支持的最大的电池容量。

扩容充电

当用户选择任务类型为充电，若打开此选项，充电器将自动对电池先放完电，再充电，以消除电池的记忆效应，恢复电池的存储容量。



扫码获取更多详细信息

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USER GUIDE



ISDT

Thank you for purchasing the ISDT C4 EVO Smart Charger.

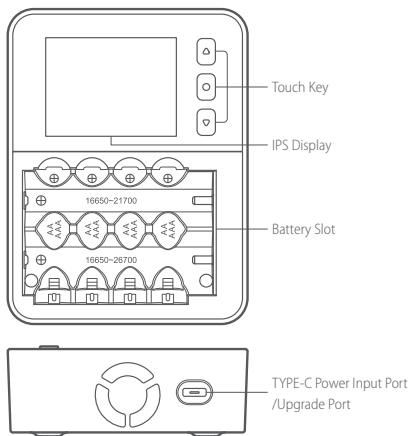
The C4 EVO Smart Charger offers excellent all-round performance and supports most popular rechargeable battery types including NiMH, NiZn, Lilon, LiFe, LiHv.

The high contrast full colour IPS display features a wide viewing angle which clearly displays detailed option parameters and real-time task progress. Different batteries can be placed into different slots and operate independently of each other, and the charger will automatically identify battery types and choose the appropriate charge settings.

Please read this user manual in detail and follow the instructions carefully before using your new charger.

- Do not charge a non-rechargeable battery or a battery with damaged surface insulation.
- Keep the charger away from humidity and high temperature while charging. Ensure the cooling fan is ventilating properly.
- Make sure the charge and discharge settings are correct. Incorrect settings may cause dangerous accidents.
- Do not let the children operate the charger.

Port / Key



Specification

Model:	C4 EVO
Max. Input Power:	36W
Support Battery Count:	1~4 Cylindrical batteries
Support Battery Size:	AAA, AA, 10440, 10500, 12500, 13500, 14500, 14650, 16650, 17650, 17670, 18650, 18700, 20650, 20700, 21700, 22650, 26650, 26700
Support Battery Type:	NiMH, NiZn, Lilon, LiFe, LiHv
Operating Voltage Range:	5~12V (Supports QC, PD protocol)
Charging Current Range:	0.1~3.0A (Horizontal), 0.1~1.5A (Vertical)
Discharging Current Range:	0.1~1.5A (Horizontal), 0.1~1.0A (Vertical)
Operation Modes:	Charge, Discharge, Storage, Destroy, Cycle, Activate, Analyse
Display:	320x240 IPS LCD
Beep Sound:	Multi-tone
Temperature Sensors:	6
Operating Temperature:	0~40°C
Reverse Polarity Protection:	Vertical physical anti-reverse polarity connection and horizontal anti-reverse polarity connection hardware
Overheating Protection:	Supported
Overcapacity Protection:	Supported
Dimensions:	120x92x34mm
Weight:	About 195g

** The maximum lateral length of the batteries is 70mm*

Task Setting

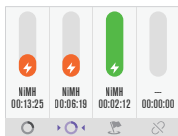
Using this charger, either four AA or AAA batteries or one 16650~21700 and one 16650~26700 battery can be charged, discharged, stored, cycled, analyzed, activated and destroyed in a variety of combinations.

Automatic Mode

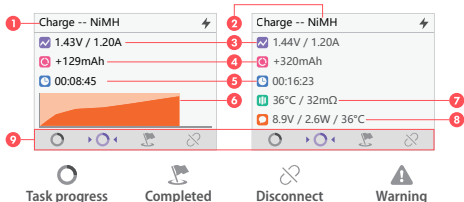
1. Connect a Type-C to the C4 EVO power input port.
2. After inserting the battery into the slot correctly, the charger detects the battery, and the display will change from the standby page to the task setting interface.

The buzzer will sound once every 1.5 seconds. If the user does not respond within 5 seconds and perform an operation, the charger will automatically start charging.

The display will show the following charging status, as shown below:

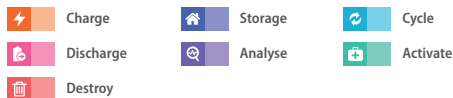


At this time, short press the middle button to change display information as shown below:



Interface

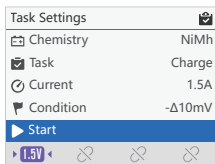
- | | |
|--------------------------------|-------------------------------|
| 1. Task Status | 6. Voltage Curve |
| 2. Battery Type | 7. Resistance and Temperature |
| 3. Output Voltage and Current | 8. Charger Status |
| 4. Charged/Discharged Capacity | 9. Task Status Preview Bar |
| 5. Task Operation Time | |



* The taskbar shows the status of each task visually, You can switch between the detailed task pages by using the up and down arrow buttons.

Manual Mode

Place a battery into a suitable charging slot and the charger will start charging automatically after three beeps. You can short press the up and down buttons to remain on the task page and change each parameter manually. The options are as follows:



Battery Type	NiMH, NiZn, Lilon, LiFe, LiHv
Task	Charge, Discharge, Storage, Destroy, Cycle, Activate, Analyse
Current Setting	0.1~3.0A (Horizontal), 0.1~1.5A (Vertical)

* The task will automatically begin ten seconds after manual modification is completed.

Confirming Battery Types

Usually, the battery chemistry type and the rated voltage are marked on the battery sleeve. The charger will attempt to automatically identify the battery type based on the built-in detection algorithm, but please select the battery types manually if the charger chooses incorrectly.

** NiZn and LiHv batteries need to be selected manually.*

Default battery types and task parameters

	NiMH	NiZn	Lilon	LiHv	LiFe
Rated Voltage	1.20V	1.50V	3.70V	3.80V	3.30V
Full Charge Voltage	1.65V	1.90V	4.20V	4.35V	3.65V
Storage Voltage	✗	✗	3.70V	3.80V	3.20V
Discharge Voltage	0.90V	1.30V	3.10V	3.30V	2.90V

Determining Charging Current

Always follow your battery manufacturer's charging instructions, as it is important to know the maximum charging current of the battery. Applying excessive charge current may reduce the lifespan of a battery and/or cause damage.

In addition, excessive currents can cause heating and/or explosion of the battery during the charging process. The charging and discharging capacity of a Lithium battery is often marked with a C value. Multiplying the charging C value and the battery capacity generally determines the maximum charging current supported by the battery. For example, for a 1000mAh battery with a charging capacity of 0.5C, the maximum charging current is $1000 \times 0.5 = 500\text{mA}$; therefore, the maximum charging current is 0.5A. For a lithium battery, if it is not possible to confirm the supported charging C value, please set the charging current below 1C for safety and to protect your battery. Charge time will be directly proportional to charging current and due to differences in battery conversion efficiency, the time taken to complete charging might be extended for different battery types and capacities.

Storage Function

Use the storage function if a battery will not be used for a long period.

When selecting storage functions, automatic charging will be initiated if the battery voltage is lower than the preset storage voltage; likewise, automatic discharging will be initiated if the battery voltage is higher than the preset storage voltage.

Cycle Function

In this mode the battery will start a cycle of charging and discharging which can be configured up to 30 cycles.

Analysis Function

The analysis function can be applied to a battery that is under-performing or if you would like to examine performance in general. This function can also be used to identify and match the working capacities of batteries.

Activation Function

Occasionally a NiCd or NiMH battery may become so discharged that it can no longer be recharged under normal conditions, especially if the voltage is extremely low. Battery activation uses a low current to perform an activation cycle which will charge, discharge, then charge the battery. The battery will be activated during this process but will sometimes require up to three cycles. If the battery still cannot be activated, then do not continue and dispose of the battery.

Internal Resistance Measurement Function

The charger is equipped with a function for measuring the internal resistance of individual cells. The internal resistance is measured and calculated after the charging task has been initiated for 10 seconds.


When the charger measures the internal resistance of the battery, it will instantly adjust the charging current, so it is normal for sudden changes to occur in the current during the charging process.

Due to the way the device measures internal resistance, the size of the charging current can impact the accuracy of the internal resistance measurement.

A battery with large capacity and low internal resistance requires a larger charging current to accurately measure the internal resistance.

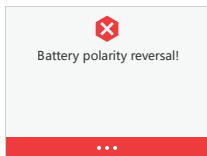
Charging Completion

After beginning a task, progress will be displayed in the task quick preview bar.

“” will be displayed when the task is completed. It is normal for voltage decline to occur once charging completes. As the number of charge cycles increases, the performance of a battery decreases, and voltage decline becomes more obvious. Charging a battery with a larger current will also cause a greater decline in voltage after the charging is complete.

Battery short circuit and reverse polarity protection

When a battery has been inserted with the wrong polarity the corresponding slots status will be displayed as below:



System Settings

To enter the System Settings screen, remove all batteries from the charger and then long press the middle button.

Volume

There are four options for volume setting: high, medium, low and off.

When set to "Off", the operation prompt sound will be turned off, but the error prompt sound will not be turned off.

Theme

Set the background color to bright/dark.











Capacity limit

Set the maximum battery capacity.

Activate Charging

If this option is turned on when the user selects the task type as Charging, the charger will automatically discharge the battery before charging.

This is to eliminate the memory effect of the battery and restore the storage capacity of the battery.

System Settings 	
 Volume	Low
 Brightness	Low
 Theme	Bright
 Capacity limit	Off
 Activate Charging	Off
 Language	English
 System info	
 Restore	
 Back	



Scan the code for more information

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