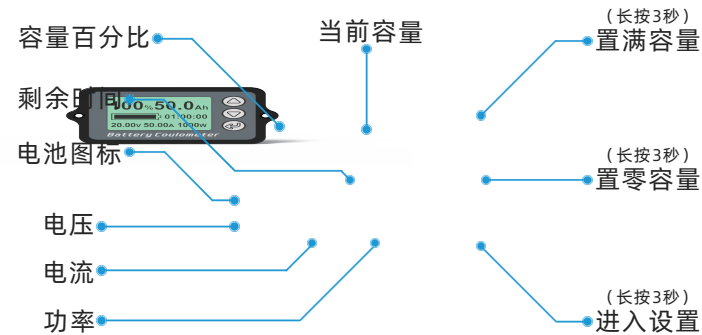


## TK15 电流型电池容量显示表 库仑计

# 用户手册

### 产品示意图



### 功能和应用范围

本产品为高精度电流采集型电池电量计(也称库仑计)。能准确实时的检测电池组的电压、电流、功率、真实容量、剩余使用时间等,随时准确了解电池的工作状态。

适用于使用电池设备的电动车、应急电源、储能电源、测量设备、医疗设备、各种仪器仪表等产品。

### 适用电池规格

适合于工作电压在8V~120V的锂电池、磷酸铁锂、铅酸、镍氢等各种电池组,注意本产品必须配合采样器使用。

### 使用步骤

1.接线并检查电流:  
按照图示完成连接后通电,屏幕应显示电池电压,电流和容量百分比等信息。若无显示应断电检查连接是否正确。再对电池进行放电或充电并检查显示电流值和实际电流值是否一致,若误差较大请检查接线是否正确。**(确保流过电池的所有电流都经过采样器!)**

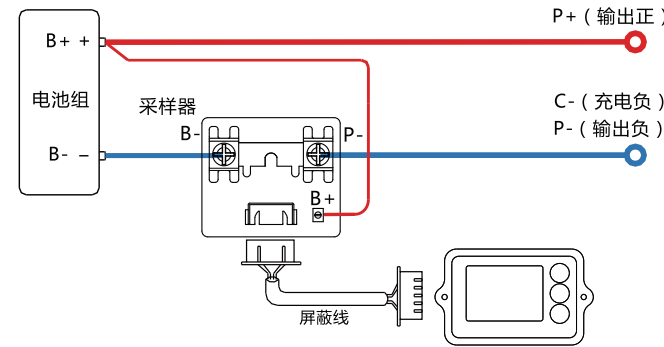
2.电池有效容量的检测和设置:  
首次使用前需要正确设置电池的有效容量(CAP值),见“使用设置”。如电池的有效容量未知,需按以下操作步骤检测:  
A. 进入容量设置界面,将容量值尽量设大;  
B. 将电池组放空,再对电池组进行充电;  
C. 充满后将显示器的容量值设置到电量表的CAP容量值。

3.容量归位(电池容量清零或满容量设置):首次使用或更换电池后屏幕显示容量并非电池的实际值,需进行零容量或满容量操作:将电池放空后长按▽键,置零容量0%;或将电池充满后长按△键置满容量100%。即可正常使用,以后无需再进行此操作。

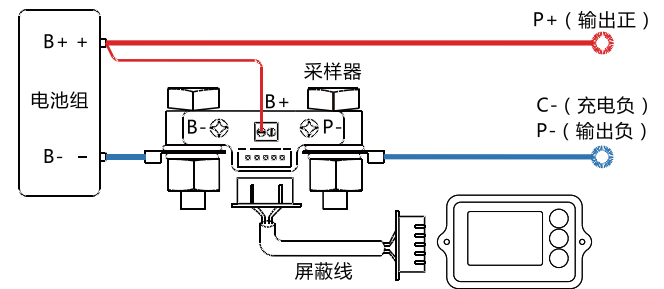
### 接线方法

1. 采样器必须串联到电池组的负极回路中。采样器上B-端连接电池组负极B-,P-端连接充电放电的负极P-/C-。
2. 取一根红色导线将电池正极和采样器B+连接,用于屏幕供电。
3. 用屏蔽线将采样器和表相连,确认无误后,通电即可正常工作
4. 接线原则: **确保流过电池的所有电流都经过采样器!**

#### 50A采样器接线图



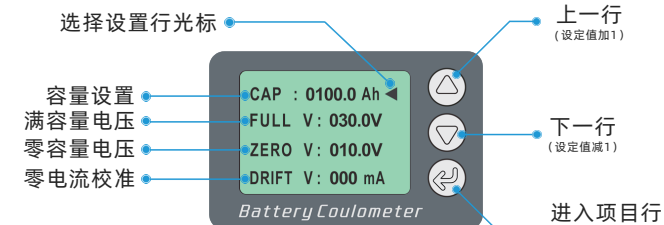
#### 100A/350A采样器接线图



注意:请严格按照接线图接线,采样器必须串联在电池的负极回路中,严禁连接到正极回路!如需延长屏蔽线必须使用4根同规格导线。

### 使用设置

1. 长按↻键2秒进入设置界面,如图:



注:同时按下△▽键2秒退出设置。

2. 预设容量和电压设置:  
CAP 有效容量:出厂时为初始容量,请根据电池组实际真实有效容量设置,否则容量百分比显示会不正确;  
FULL V 满容量电压:高于此电压容量自动置为100%;  
ZERO V 零容量电压:低于此电压容量自动置为0%;  
DRIFT 零电流校准:电流零位偏差可校准零位;(电路无电流时,光标选择至该行,点按↻键校准)。

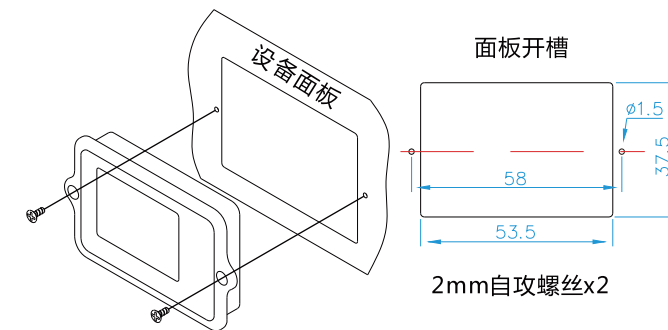
注意:一般无需设置FULL V和ZERO V,默认为0V,即无效。若要设置,请先了解电池组的实际充满电压和放空电压。

### 使用说明

1. 进行充电和放电时,必须处于工作状态,否则不能准确计算电池容量。本产品为低功耗设计,背光不亮(待机)时功耗很低,供电B+尽量不接在电源开关后,即始终保持通电状态。
2. 连接负载,当放电电流大于背光开启电流时,背光开启(若背光闪烁,说明采样器的B-和P-接反),指示电池在放电,并显示放电电流和剩余放电时间。若负载电流波动较大,时间也会波动,属正常现象。
3. 断开负载,连接充电器,当充电电流大于背光开启电流时,背光闪烁(若背光常亮,说明采样器的B-和P-接反),指示电池在充电,并显示充电电流和剩余充电时间。
4. 充电或放电电流值小于背光关闭电流时,将进入低功耗状态,背光关闭。
5. 本产品具有断电容量记忆功能。
6. 在电流变化剧烈的场合可能产生一定的误差,影响容量值

### 安装方式

在要安装的设备面板上开一个矩形孔和两个螺丝孔,将显示器置于要安装的设备面板正面,从设备面板的正面安装,从正面用自攻螺丝将TK15与设备面板固定。如下图所示:



注:设备面板并非产品配件,不包含在产品中

### 技术参数

参数	最小值	常规值	最大值	单位
工作电压	8.0	50.0	120	V
工作功耗		6.0	8.0	mA
待机功耗		0.5	0.8	mA
睡眠功耗		50.0	60.0	uA
电压采集精度		±1.0		%
电流采集精度		±1.0		%
容量采集精度		±1.0		%
背光开启电流(50A)		50		mA
背光开启电流(>50A)		100		mA
预设容量值	0.1	100	9999.0	Ah
50A采样器电流	0	50.0	75.0	A
100A采样器电流	0	100.0	150.0	A
350A采样器电流	0	350.0	500.0	A
使用环境温度范围	-10	20	50	°C
重量(50A/100A/350A)	150/220/360			g
尺寸	66*40*14			mm

注意:本产品需配合采样器使用(表内部参数不同),不同规格采样器与表禁止混用。

采样器为发热部件,尽量安装在空气流通处,严禁包裹覆盖!按照最大电流长期使用,务必保持通风和散热。

### 注意事项及质保

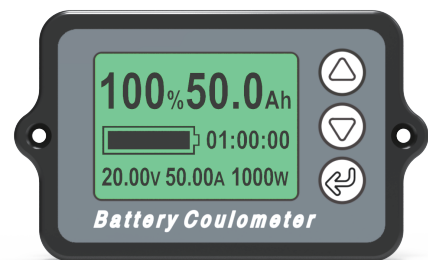
本产品不能在阳光下长期暴晒,不能长时间暴露在低于-10°C和高于50°C的极端条件下,否则将缩短显示器液晶屏的使用寿命。

本产品质保期自购买日起一年内,出现非人为质量问题,均可免费维修。

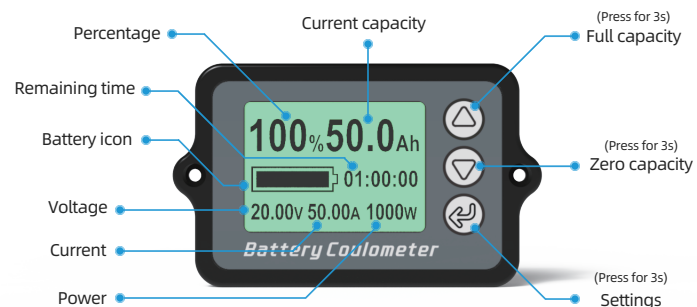
本产品可能会技术改进或更新,如果您购买的产品与《产品使用说明书》中所描述的产品外观、技术参数等有出入,请以实物或网站介绍为准。

## TK15 current battery capacity indicator Coulometer

# USER MANUAL



### Product indication



### function and application range

This product is a battery fuel gauge with high precision current acquisition (also known as coulomb meter). It can accurately detect the voltage, current, power, real capacity and remaining usage time of the battery pack in real time. You can always know the working status of the battery at any time.

It is suitable for electric vehicles, emergency power supplies, energy storage power supplies, measuring equipment, medical equipment, various instruments and other products that use battery.

### Applicable battery specifications

It is suitable for various battery packs such as lithium batteries, lithium iron phosphate, lead acid, and nickel hydrogen with a working voltage of 8V to 120V. Note that this product must be used with the sampler.

### Steps for use

1. Wiring and checking the current  
Power on after completing the connection as shown. The information should be displayed on the screen such as battery voltage, current and percentage of capacity et al. If there is no display, the power should be turned off to check whether the connection is correct or not. Then discharge or charge the battery. And check if the displayed current value and the actual current value are consistent. If the error is large, please check if the wiring is correct. **(Make sure that all current flowing through the battery passes through the sampler.)**

2. Detection and setting of battery effective capacity  
The battery's effective capacity (CAP value) needs to be set correctly before first use, see "Usage Settings". If the effective capacity of the battery is unknown, you need to follow the steps below:

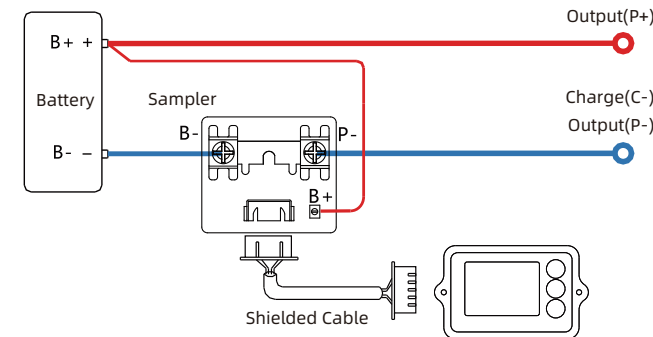
- Enter the capacity setting interface and set the capacity value as large as possible;
- Empty the battery pack and then charge;
- Set the capacity value of monitor to the CAP capacity value of the meter.

3. Capacity homing (The battery capacity is cleared or full capacity setting): After the first use or replacement of the battery, the screen display capacity is not the actual value of the battery, and zero or full capacity operation is required. Press and hold the button  $\nabla$  after the battery is emptied, and the zero capacity is 0%. Or press and hold the button  $\Delta$  after the battery is full, the full capacity is 100%. You don't need to do this again in the future.

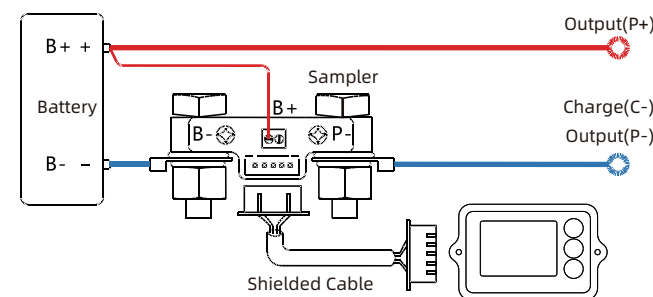
### Wiring method

- The sampler must be connected in series to the negative circuit of the battery pack. The B- of the sampler is connected to the negative B- of the battery pack. The P- of the sampler is connected to the negative P-/C- of the battery pack.
- Take a red wire and connect the battery positive to the sampler B+ for screen power.
- Use a shielded cable to connect the sampler to the meter. After confirming that it is correct, power on will work normally.
- Wiring principle: **Make sure that all current flowing through the battery passes through the sampler.**

#### 50ASampler wiring diagram



#### 100A/350A Sampler wiring diagram

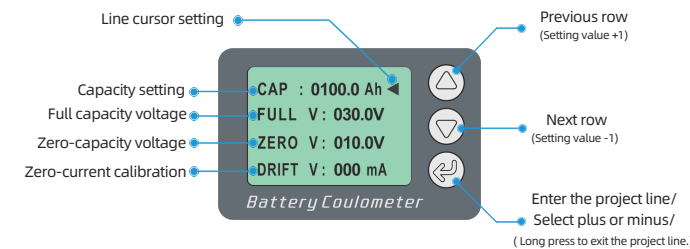


Note: Please wire strictly as shown. The sampler must be connected in series with the negative circuit of the battery. It is strictly forbidden to connect the positive circuit. Shielded wires cannot be extended by themselves.

Note: This product is required to be used with the sampler (The internal parameters of the table are different). Samplers of different specifications and tables are forbidden to be mixed.

### Use settings

1. Press and hold the button  $\nabla$  for 2s to enter the setting interface as shown:



Note: Press simultaneously the button for 2s to exit the settings.

2. Preset capacity and voltage settings:

- CAP** Effective capacity: It is the initial capacity at the factory. Please set according to the actual, real and effective capacity of the battery pack, otherwise the display of capacity percentage will be incorrect;
- FULL V** Full capacity voltage: It will be automatically set to 100% if above this voltage capacity;
- ZERO V** Zero-capacity voltage: It will be automatically set to 0% if below this voltage capacity;
- DRIFT** Zero-current calibration: Zero-position can be calibrated by current zero deviation. (The cursor is selected to the line and the button  $\nabla$  is pressed to calibrate when there is no current in the circuit.)

Note: Generally, it is not necessary to set FULL V and ZERO V. The default is 0V, which is invalid. If you want to set, please understand the actual full voltage and venting voltage of the battery pack

### Instructions for use

1. The status must be in working when charging and discharging, otherwise the battery capacity cannot be accurately calculated. This product is designed for low power consumption. When the backlight is not bright (standby), the power consumption is very low. It will always be powered when the B+ is not connected to the power switch.

2. Connect the load. The backlight turns on (the sampler's B- and P- are reversed if the backlight flashes) indicating that the battery is discharging when the discharge current is greater than the backlight turn-on current. And display the discharge current and the remaining discharge time. The time will also fluctuate greatly which is normal if the load current fluctuates.

3. Disconnect the load and connect the charger. The backlight flashes (indicating that the sampler's B- and P- are reversed if the backlight is always on) indicating that the battery is charging when the charging current is greater than the backlight turn-on current. And display the charging current and the remaining charging time.

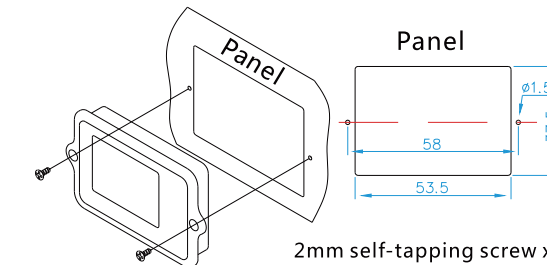
4. It will enter the status of low power consumption and the backlight will be turned off when the charge or discharge current is less than the backlight turn-off current.

5. This product has a power-off capacity memory function.

6. A certain error may occur in the case where the current changes drastically, which affects the capacity value.

### Installation method

Open a rectangular hole and two screw holes on the panel of the device to be installed. Install the monitor from the front. Secure the front panel with the self-tapping screws. As shown below



(Note: The panel of the device are not product accessories and not included in the product.)

### Technical parameters

Parameters	Min	Regular	Max	Unit
Operating Voltage	8.0	50.0	120	V
Working power consumption (backlighting)		6.0	8.0	mA
Standby power consumption (backlight off)		0.5	0.8	mA
Sleep power consumption		50.0	60.0	$\mu$ A
Voltage acquisition accuracy		$\pm 1.0$		%
Current acquisition accuracy		$\pm 1.0$		%
Capacity acquisition accuracy		$\pm 1.0$		%
Backlight turn-on current (50A models)		50		mA
Backlight turn-on current (>50A models)		100		mA
The range of capacity values can be set	0.1	100	9999.0	Ah
50A Sampler current	0	50.0	75.0	A
100A Sampler current	0	100.0	150.0	A
350A Sampler current	0	350.0	500.0	A
Temperature range	-10	20	50	$^{\circ}$ C
Weight (50A/100A/350A)		150/220/360		g
Monitor size		66*40*14		mm

The sampler is a heat-generating component, and it should be installed in the air circulation as much as possible. Always keep ventilation and heat dissipation when using the maximum current for long periods of time.

### Precautions and warranty

This product cannot be exposed to sunlight for a long time, and cannot be exposed to extreme conditions below  $-10^{\circ}$  C and above  $50^{\circ}$  C for a long time, otherwise it will shorten the life of the LCD screen.

The warranty period of this product is within one year from the date of purchase. It be repaired free of charge when non-human quality problems occur.

This product may be technically improved or updated. If the product you purchased differs from the appearance and technical parameters of the product described in the Product User's Guide, please refer to the actual product or website.