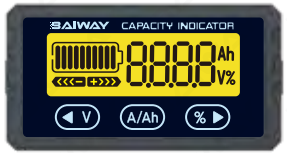
TY23液晶电量显示器



使用说明书

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产品示意图

功能和应用范围

●TY23是一款通用的高精度电流采集型电池电量计（也称库仑计），能够实时准确计量电池组的电压、电流、容量等使用信息，帮助使用者准确了解电池组的工作状态，并具有掉电记忆功能。

●适用于移动便携设备、应急电源、储能电池组、AGV、UPS电源、基站电源、户外小型充电站、扫地机、平衡车、电动车、吸尘器、测量设备、医疗设备、各种仪器仪表等。

适用电池规格

●该产品适合于工作电压在8V~120V的锂电池、磷酸铁锂电池、铅酸电池、镍氢电池等电池组。

技术参数

参数	最小值	常规值	最大值	单位
工作电压	8.0		80.0	v
工作功耗		10.0	12.0	mA
待机功耗		0.5	0.6	mA
休眠功耗		21.0	50.0	μA
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规格)		50		mA
背光开启电流(100A规格)		100		mA
容量设定值	0.1		999.0	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
使用环境温度范围	-10	20	60	℃
显示表重量		25		g
50A采样器重量		30		g
100A采样器重量		110		g
外观尺寸		64.0*34.0*14.3		mm
开孔尺寸		59.5*28.0		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时，务必保持通风和散热。

工作界面说明

接线方法

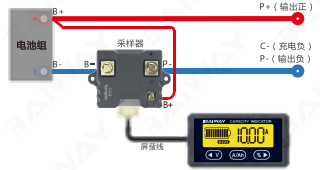
1.首先将采样器串联到电池组的负极回路中。采样器上B-端连接电池组负极B-，P-端连接充放电的负极P-/C-。

2.然后取一根0.3-0.5mm²的红色导线，一端连接电池组正极B+，另一端连接采样器上B+接线柱。

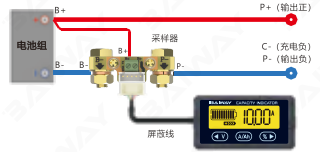
3.最后将屏蔽线一端连接采样器插口，另一端连接TY23插口，确认无误后，通电即可正常工作。（接线图为示意图不是等比例图）。

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采样器接线图

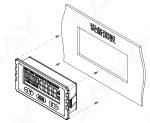


注意：TY23标配采样器一个，屏蔽线所需长度不同需单独购买（长度0.5米~10米可选）。请严格按照接线图接线,采样器必须串联在电池的负极回路中，严禁连接到正极回路!严禁加长或剪短屏蔽线!

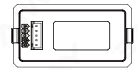
安装方法

本产品通过卡扣固定，安装方便。按照尺寸在设备面板上开一个矩形孔，将显示器放于矩形孔中用力按压使卡扣卡紧即可。如下图所示：

产品示意图



安装示意图



产品背面示意图

开孔尺寸图

（注:设备面板非产品配件，不包含在产品中）

使用步骤

1.检查电流: 完成连接后进行通电，屏幕应显示数值（若无任何显示，应断电检查连接是否正确）对库仑计进行放电或充电,点按 A/Ah 键切换至电流显示，检查显示电流值是否与实际电流值一致。如误差较大请检查接线是否正确。

2.首次使用需设置电池容量，方法见“参数设置→容量设置”。

（如电池容量未知，方法见“参数设置→实际有效容量的检测重设”）

3.表显示容量清零与满电操作（容量归位）:首次使用时屏幕显示的百分比和容量并非电池当前的实际值，需要进行零容量或者满容量操作将表容量归位。

方法一：将电池放空电后，点按 % ▶ 键切换到百分比显示，再长按 ◀ V 键3秒置容量百分比为0%(置零容量）。

方法二：将电池充满电后，点按 % ▶ 键切换到百分比显示，再长按 % ▶ 键3秒置容量百分比为100%(置满容量）。

功能说明

1.在进行充/放电时库仑计须处于工作状态，否则将不能准确计算电池容量。

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），屏幕显示放电指示符 ◀◀◀，表示正在放电。

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)，屏幕显示充电指示符 ▶▶▶，表示正在充电。

4.当充电或放电电流值小于背光关闭电流时，库仑计进入低功耗状态，背光关闭；并且库仑计会记忆容量而不丢失（即掉电自动记忆功能）。

5.本库仑计灵敏度较高，在待机状态下（电池组无输入或输出电流），受到附近电器辐射干扰（如开启或关闭电机等感性负载），可能会引起背光的短暂开启，属于正常现象。

6.库仑计在电流变化剧烈的场合可能会产生一定的误差，影响采样精度。

参数设置

●显示界面切换:

点按 ◀ V 键显示当前电压;

点按 A/Ah 键显示当前电流，再点按 A/Ah 键显示当前Ah容量;

点按 % ▶ 键显示当前容量百分比。如图所示:

●电池实际有效容量的检测重设（表显示容量值出现偏差）：把电池放空后将表置零容量，进入容量设置界面将Ah值尽量设大（例如预估20Ah的设成30Ah）。再对电池组进行充电，充满电后库仑计的显示的Ah值即为电池组的实际有效容量，再次进入容量设置界面将Ah值修改为实际有效容量即可。如果电池容量衰减后也需进行本操作，否则百分比显示有偏差。

●容量设置:

在Ah容量界面下，长按 A/Ah 键3秒，进入容量设置界面。设置值闪烁，点按/长按 ◀ V 键减小数值，点按/长按 % ▶ 键增大数值，设置完成后按 A/Ah 键完成设置并退出。

●零容量电压设置（当电压低于设定值，容量自动归零）

在电压界面下长按 A/Ah 键3秒，进入零容量电压设置界面。设置值闪烁，点按/长按 ◀ V 键减小数值，点按/长按 % ▶ 键增大数值，设置完成后按 A/Ah 键完成设置并退出。当电池电压低于设置值时容量自动置为0%。

注意：零容量电压默认为0V即无效，一般无需设置。如要设置需了解电池组实际充放电电压。

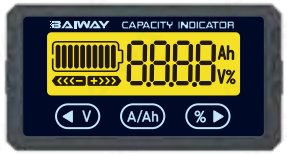
注意事项及质保

●显示器不能在阳光下长期暴晒，不能长时间暴露在低于-10℃和高于60℃的极端条件下，否则将缩短显示器液晶屏的使用寿命。

●本产品自购买日起一年内为质保期，在此段时间内产品若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。

TY23 Battery Capacity Tester



Instruction

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Diagram of Product

Function and Application Range

●TY23 is a common high-accuracy current collecting type of coulombmeter, it can correctly measure voltage, current, capacity in real time. It can help user accurately understand work status of battery pack, with power-down memory function.

●Applicable for portable device, emergency supply、Energy storage battery pack、AGV、UPS Power Supply、Base station power supply、Outdoor small charging station、sweeping machine、 balance bike,electric car, vacuum cleaner, measuring device, medical device, various instruments, etc.

Applicable Battery Specification

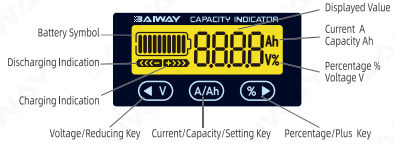
●This product is applicable for 8V~120V battery pack, such as lithium battery, lithium iron phosphate battery, lead-acid battery, nickel metal hydride batteries, etc.

Technical Parameter

Parameter	Min.	Regular	Max.	Unit
Working voltage	8.0		80.0	v
Working Consumption		10.0	12.0	mA
Stand-by Consumption		0.5	0.6	mA
Sleep Consumption		21.0	50.0	μA
Accuracy of Voltage Collecting		±1.0		%
Accuracy of Current Collecting		±1.0		%
Accuracy of Capacity Collecting		±1.0		%
Backlight on current(50A specification)		50		mA
Backlight on current(100A specification)		100		mA
Setting Value of Capacity	0.1		999.0	Ah
50A Sampler Current	0	50.0	75.0	A
100A Sampler Current	0	100.0	150.0	A
Temperature Range in Application Environment	-10	20	60	℃
coulombmeter Weight		25		g
50A Sampler Weight		30		g
100A Sampler Weight		110		g
Appearance size		64.0*34.0*14.3		mm
Hole size		59.5*28.0		mm

Notes: This product shall be used with sampler (the internal parameters are different), the different samplers cannot be used with meters. The heating components of sampler shall be installed at the ventilated position and be prohibited to cover! For long term use with max. current, please keep ventilating and cooling.

Instruction of Working Interface



Connection Method

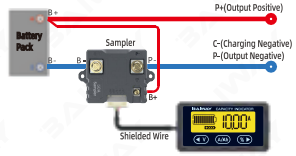
1. First, connect the sampler in series with the negative circuit of the battery pack. B- on sampler connects to B-of battery pack, and P- connects to P-/C- of charging and discharging.

2. Then take a piece of 0.3-0.5 mm² red wire, one end connects to B+ of the battery pack, and the other end connects to B+ binding post on the sampler.

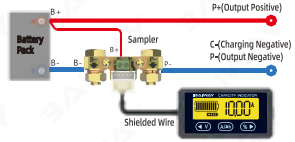
3. Finally, connect one end of the shielded wire to the sampler socket, and the other end connects to the TY23 socket. After confirmation, it can work when being electrified. (Connection diagram is schematic diagram, not isometric diagram).

4. Connection Principle: Ensure that all current shall pass through sampler!

★ **Connection diagram of 50A sampler:**



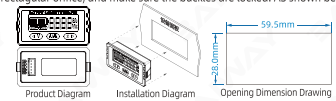
★ **Connection diagram of 100A sampler:**



Notes: TY23 is equipped with a sampler，the shielded wires are different due to required length, which is required to purchase individually (length 0.5m to 10m for option).Please connect wire strictly based on connection diagram, the sampler must connect to the negative circuit of battery, the sampler cannot connect to positive circuit! It is forbidden to lengthen or cut the shield wire!

Installation Method

●This product is fixed by buckles and it allows easy installation. Open a rectangular orifice on the panel according to the size.Then put the indicator into the rectagular orifice, and make sure the buckles are locked. AS shown below:



Notes: The equipment panel doesn't belong to product.

Steps of Uses

1. Check the current: Power on after finishing connection, the screen displays numerical value (if no display, check the connection when power off). Discharge or charge the coulometer, press the A/Ah key switch to the current display, and check whether the displayed current value is consistent with the actual current value. If the error is big, please check the connection

2. The battery capacity should be set for the first use. See "parameter setting → capacity setting" for the method.

(If the battery capacity is unknown, please refer to "parameter setting → detection and reset of actual effective capacity") for the method.

3. The meter displays capacity zero and full-power operation (capacity reset): the percentage and capacity displayed on the screen when using for the first time are not the current actual values of the battery, it needs to use zero capacity or full-capacity operation to reset the meter capacity.

Method 1: After fully discharge battery, press % ▶ key switch to percentage display, and then holding ◀ V key for 3 seconds to set zero capacity to display 0%(Zeroing capacity).

Method 2: After fully charge battery, press % ▶ key switch to percentage display, and then holding % ▶ key for 3 seconds to set full capacity to display 100%.（Fill up capacity）

Function Instruction

1. When charge/discharge, the coulombmeter must work, otherwise battery capacity cannot calculate.

2. Connect load, when discharge current is bigger than backlight on current, Backlight on (If backlight flickers, it means the B- and P- of sampler are reserved), the screen displays discharging symbol ◀◀◀, it means discharging.

3. Disconnect load, connect charger, when charge current is bigger than backlight on current, the backlight flickers (If backlight is always on, it means the B- and P- of sampler are reserved), the screen displays charging symbol ▶▶▶ it means charging.

4. When charge or dischargie current value is smaller than backlight turn-off current, coulombmeter enters into low consumption status, the backlight is off; and coulombmeter will memorize capacity but not lose (namely power-down auto memory function).

5. The coulombmeter sensitivity is high, under stand-by (the battery pack doesn't have input or output current), it is interrupted by nearby electric equipments(such as turning on or off the motor and other inductive loads), it may cause the backlight turn on for short time, it is normal.

6. The coulombmeter may have errors when current severely changing, it affects on sampling accuracy.

Parameter Setting

●Display Interface Switching:

Press ◀ V key to display present voltage;

Press A/Ah key to display present current, then press A/Ah key to display present Ah capacity;

Press % ▶ key to display present capacity percentage. As shown in the figure:

●Check and reset the actual battery effective capacity (the capacity value has error): set the meter to zero capacity after fully discharging, and enter the capacity setting interface to set the Ah value as large (for example, set the estimated 20Ah as 30Ah). Then re-charge the battery pack, and the display Ah value of coulombmeter after fully charging is the effective actual capacity of the battery pack, and re-enter the capacity setting interface to modify the Ah value into the effective capacity. If the battery capacity decays, this operation should also be carried out, otherwise the percentage shows error.

●Capacity Setting:

In Ah capacity interface, holding A/Ah key for 3 seconds, enter into capacity setting interface. The setting value flickers, click/press ◀ V key to reduce value, click/press % ▶ key to increase value, after finishing setting, press A/Ah key to finish setting and exit.

●Zero capacity voltage setting (When voltage lower than setting value, capacity automatically zero)

In voltage interface, holding A/Ah key for 3 seconds, enter into zero capacity voltage setting interface. Setting value flickers, click/press ◀ V key to reduce value, click/press % ▶ key to increase value, after finishing setting, press A/Ah key to finish setting and exit. When battery voltage lower than setting value, capacity is automatically set as 0%.

Notes: zero capacity voltage is defaulted as 0V, which means ineffective and no setup required. If it needs to be set, the actual charge/discharge voltage of battery pack needs to be understood.

Attention and Warranty

●The monitor cannot be under sunlight for a long time, cannot be under below -10℃ and above 60℃ for long periods of time, otherwise the lifetime of LCD screen of monitor will be short.

●This product is guaranteed within one year from the date of purchase. If there are non-artificial quality problems in this period, it can be repaired for free.

This product may be technically improved or updated. If your purchased product is different from the product appearance and technical parameters described in the Product Instruction Manual, please refer to the material object or website introduction.