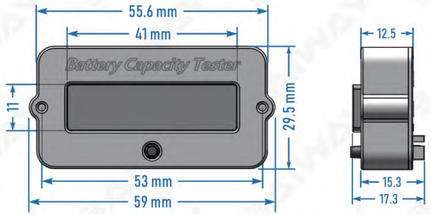
TY02K液晶电量显示器

使用说明

V3.2

产品示意图



功能和应用范围

●TY02K是一款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、剩余容量等使用信息，帮助用户随时准确了解电池的工作状态。

●适用于便携式移动设备、平衡车、电动车、测量设备、扫地机、各种仪器仪表等。

适用电池规格

●本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		120.0	v
工作功耗		5.0	12.0	mA
待机功耗		0.5	0.6	mA
休眠功耗		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规格)		50		mA
背光开启电流(>50A规格)		100		mA
容量设定值	0.1		999.0	AH
20A内置采样器电流	0	15.0	20.0	A
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	℃
重量（20A/50A/100A）		23.6/150/210		g
外观尺寸		59×29.5×17.3		mm
开孔尺寸		41.5×10.8		mm

注意：本产品需配合采样器使用，因表内部参数不同，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。

外置采样器接线方法

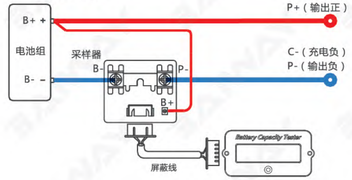
1.**首先**将采样器串联到电池组的负极回路中。采样器上B-端连接电池组负极B-，P-端连接充放电的负极P-/C-。

2.**然后**取一根0.3-0.75mm²的红色导线，一端连接电池组正极B+，另一端连接采样器上任意一个B+接线柱。

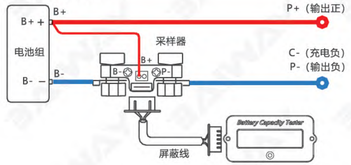
3.**最后**用屏蔽线将采样器和表相连，确认无误后通电即可正常工作。（接线图为示意图不是等比例图）。

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

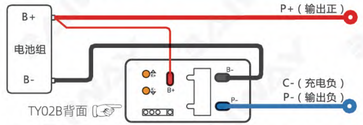


100A采样器接线图



注意：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!屏蔽线不能自行延长。

TY02B内置采样器接线方法



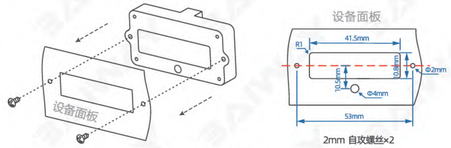
1.将电池组的总负极B-连接到TY02B背面B-焊接点，充放电负极P-/C-连接到TY02B背面的P-焊接点。

2.再用一根0.3-0.75mm²红色导线连接电池正极到TY02B背面B+焊接点，用于给TY02B供电（<10mA）。（电池正极直接连接到充电和放电正极）

3.接线原则：确保流过电池的所有电流都经过TY02B背面的B-和P-焊接点！

安装方式

●如图所示,按照开孔尺寸在设备面板上开孔，将TY02K置于要安装的设备面板背面，按箭头所示方向从设备面板的背面安装，再从正面用自攻螺丝将TY02K与设备面板固定。



注：设备面板并非产品配件，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（若无显示，应断电检查连接是否正确）。对库仑计进行放电或充电，点按正面OK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。如果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”）

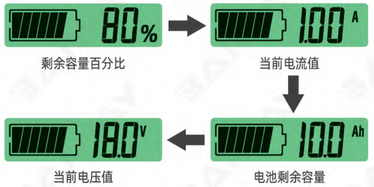
3.表显示容量清零与满电操作（容量归位）：首次使用时屏幕显示的百分比和容量并非电池当前的实际值，需要进行零容量或者满容量操作将表容量归位。

方法一：将电池充满电后，长按背面 ▲ 键3秒置满容量显示100%。

方法二：将电池放空电后，长按背面 ▼ 键3秒置零容量显示0% 。

功能说明

●TY02K工作时屏幕左侧显示电池符号；右侧可以通过正面OK键切换显示：剩余容量百分比→当前电流值→电池剩余容量→当前电压值。



1.库仑计在充电时背光闪烁，放电时背光常亮。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），屏幕显示放电电流和实时电压。

2.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），屏幕显示充电电流和实时电压。

3.当充电或放电电流值小于背光开启电流时，库仑计进入低功耗状态，背光关闭。

4.本产品具有断电容量记忆功能。

5.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。

6.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。

7.库仑计在负载电流变化剧烈的场合可能会产生一定误差，影响采样精度。

参数设置

●容量设置：

TY02K断电时长按背面 ▲ 键不放，然后上电，屏幕显示当前电池设置容量。点按 ▲ 和 ▼ 键可调整电池容量（长按可快速调整），调整到需要的容量后点按正面OK键即可正常工作。

●零容量电压设置（当电压低于设定值，容量自动归零）

TY02K断电时长按背面 ▼ 键不放，然后上电，进入零容量电压设置，点按 ▲ 和 ▼ 键可调整电池电压（长按快速续调整），当电池电压低于此电压值30s后，容量百分比置为0%；低于设定值1V继续放电将进入休眠模式（背光和液晶均熄灭）

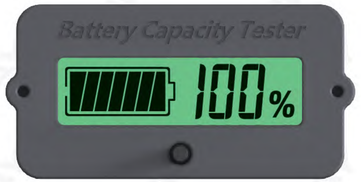
●电池实际有效容量的检测重设（表显示容量值出现偏差）：把电池放空后将表置零容量，进入容量设置界面将Ah值尽量设大（例如预估20Ah的设成30Ah）。再对电池组进行充电，充满电后库仑计的显示值即为电池组的有效实际容量，再次进入容量设置界面将值修改为有效容量即可。如电池容量衰减后也需要进行本操作，否则百分比显示有偏差。

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-20℃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。

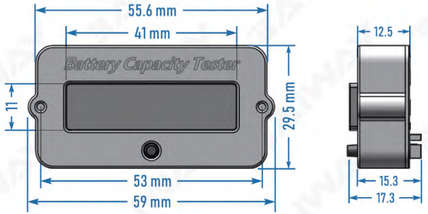


TY02K Battery Capacity Tester

Instruction

V3.2

Diagram of Product



Function and Application Range

●TY02K 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.

●Applicable for portable device, 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		120.0	v
Working Consumption		5.0	12.0	mA
Stand-by Consumption		0.5	0.6	mA
Sleep Consumption		50.0	60	uA
Accuracy of Voltage Collecting		±1.0		%
Accuracy of Current Collecting		±1.0		%
Accuracy of Capacity Collecting		±1.0		%
Backlight on current(50A specifications)		50		mA
Backlight on current(>50A specifications)		100		mA
Setting Value of Capacity	0.1		999.0	AH
20A Built-in Sampling	0	15.0	20.0	A
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	℃
Weight（20A/50A/100A）	23.6/150/210			g
Appearance size	59×29.5×17.3			mm
Hole size	41.5×10.8			mm

Note: This product needs to be used with a sampler. Because of the different internal parameters of the meter, samplers of different specifications and meters are not allowed to be mixed. The sampler is a heating component, try to install it in a ventilated place, and it is strictly forbidden to be covered! When using the maximum current for a long time, be sure to maintain ventilation and heat dissipation

Wiring method of built-in sampler

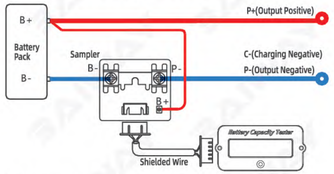
1. First, connect the sampler in series with the negative circuit of the battery pack. B- on sampler connects to B-of battery pack, and P- connects to P-/C- of charging and discharging.

2. Then take a piece of 0.3-0.75 mm² red wire, one end connects to B+ of the battery pack, and the other end connects to any B+ binding post on the sampler.

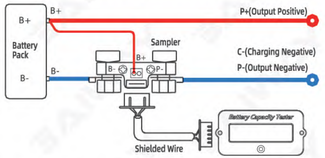
3. Finally, Use a shielded cable to connect the sampler to the meter. After confirming that it is correct, it can work normally after powering on.(Connection diagram is schematic diagram, not isometric diagram).

4. Wiring principle: make sure that all current flowing through the battery passes through the sampler!

★ Connection diagram of 50A sampler:

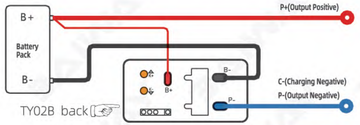


★ Connection diagram of 100A sampler:



Notes: Please connect wire strictly based on connection diagram, the sampler must connect to the negative circuit of battery, Shielded wires cannot be extended by yourselves.

TY02B Wiring method of external



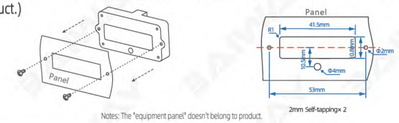
1. Connect the total negative B-of the battery pack to the B- welding end on the back of TY02B,the charge discharge negative P-/C- is connected to the P-welding end on the back of TY02B.

2. Then take a piece of 0.3-0.75 mm² red wire,which is connected battery positive to the back B + of TY02B to supply power to TY02B（<10mA）.（Positive electrode of the battery is directly connected to positive electrode of charging and discharging）

3.Connection Principle: Ensure that all the current flowing through the battery passes through the B - and P-welding end on the back of TY02B!

Installation Method

●As shown in the following figure, open the hole on the equipment panel, put TY02K on the back side of the equipment panel to be installed, and then fix TY02K to the equipment panel with self-tapping screw. (The equipment panel doesn't belong to product.)



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

Steps of Uses

1. Check the current: When power on after finishing connection, the screen should appeases the data (if no , check connection when power off). To discharge or charge the coulomb counter, press the OK button on the front to switch to the current display, and check whether the displayed current value is consistent with the actual current value. If the error is large, please check whether the wiring is correct.

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.

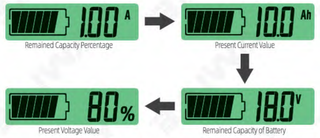
3. The meter displays capacity zero and full-power operation (capacity reset): the percentage and capacity displayed on the screen when using for the first time are not the current actual values of the battery, it needs to use zero capacity or full-capacity operation to reset the meter capacity.

Method 1: After fully charge battery, holding ▲ key on the back side for3 seconds set full capacity to display 100%.

Method 2: After fully discharge battery, holding ▼ key on the back side for 3 seconds to set zero capacity to display 0%.

Function Instruction

●When TY02K is working, the battery symbol is displayed on the left side of screen; the right side can be switched to display by OK key on the front side: remained capacity percentage → present current value → remained capacity of battery → present voltage value .



1. When charge the coulombmeter, the backlight flickers, when discharge the backlight is always on. Connect load, when discharge current is bigger than backlight on current, Backlight on (If backlight is flickering, it means the B- and P- of sampler are reserved), the screen displays discharge current and real-time voltage.

2. 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 current and real-time voltage.

3. When charge or discharge current value is smaller than backlight turn-on current, coulombmeter enters into low consumption, the backlight is off.

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

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

6. The coulombmeter sensitivity is higher, 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, which is normal.

7. The coulomb counter may produce certain errors when the load current changes drastically, which will affect on sampling accuracy.

Parameter Setting

●Capacity Setting:

When TY02K is power off, holding ▲ key for a long time, then power up, the screen displays present setting capacity of battery. Press ▲ and ▼ keys to adjust battery capacity (holding can quickly adjust), after adjusting to required capacity, press front OK key, it can work.

●Zero Capacity Voltage Setting (When voltage is lower than setting value, capacity will automatically zero)

When TY02K power off, holding ▼ key for a long time, then power up, enter into zero capacity voltage setting, press ▲ and ▼ keys to adjust battery capacity (holding can quickly adjust), after battery voltage is lower than voltage value for 30 seconds, capacity percentage is set as 0%; If continuously discharging when it lower 1V than setting value, it will enter into sleep mode (backlight and LCD both light off)

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

Attention and Warranty

●The monitor cannot be under sunlight for a long time, cannot be under below -20 ℃ 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.