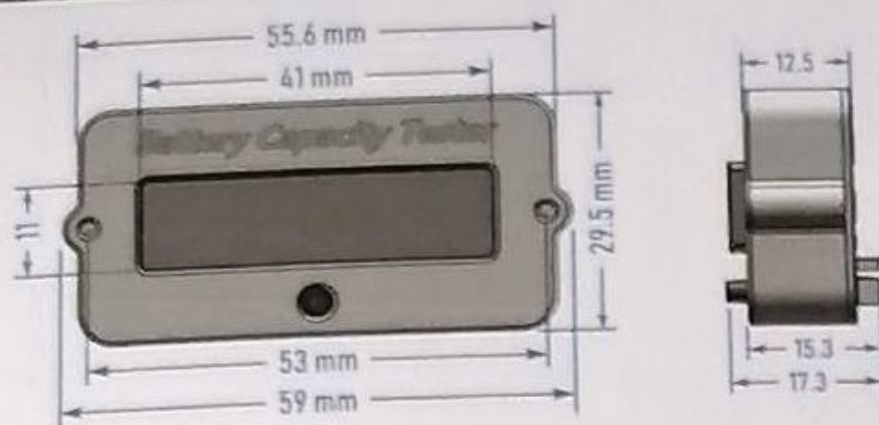




TY02K Battery Capacity Tester

# Instruction

## 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	°C
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

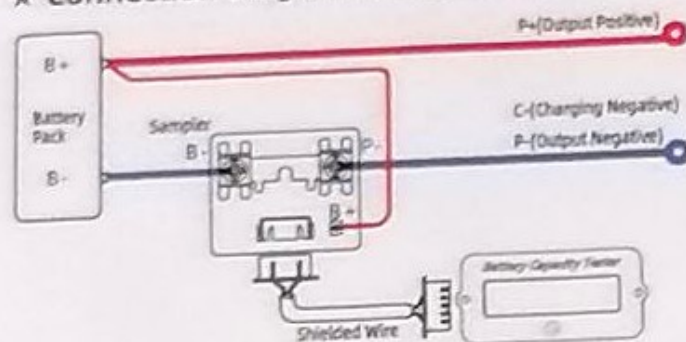
1. First, connect the sampler in series with the negative circuit of the battery pack. B- on sampler connects to B- of battery pack, and P- connects to P-/C- of charging and discharging.

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

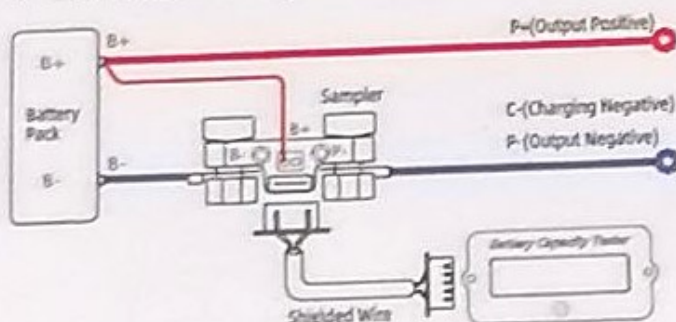
3. Finally, Use a shielded cable to connect the sampler to the meter. After confirming that it is correct, it can work normally after powering on. (Connection diagram is schematic diagram, not isometric diagram).

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

### ★ Connection diagram of 50A sampler:

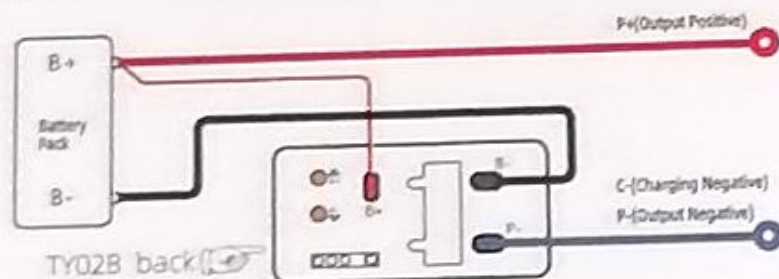


### ★ Connection diagram of 100A sampler:



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 mm<sup>2</sup> 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.)

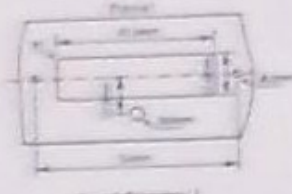


Figure 1: The "Equipment panel" doesn't belong to product

## Steps of Uses

1. Check the current: When power on after finishing connection, the screen should appear 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  $\Delta$  key on the back side for 3 seconds set full capacity to display 100%.

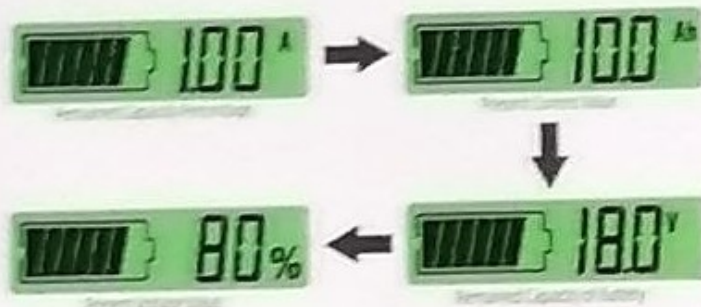


Method 2: After fully discharge battery, holding  $\nabla$  key on the back side for 3 seconds to set zero capacity to display 0%.



## 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.

100 Ah

● 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)

18.0 V

● 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 °C and above 60°C 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.