

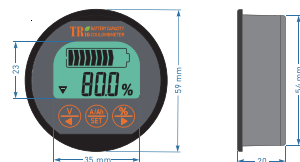


sisco

TR16H Battery Monitor

Instruction

Diagram of Product



Function and Application Range

- TR16 is a common high-accuracy current collecting type of battery monitor (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, balance bike, electric car, vacuum cleaner, measuring device, medical device, various instruments, etc.

Applicable Battery Specification

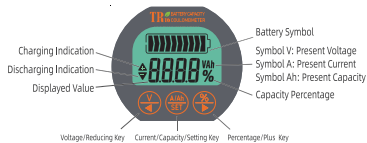
- This product is applicable for 8V-120V battery pack, such as lithium battery, lithium iron phosphate battery, lead-acid battery, nickel metal hydride batteries, etc.

Technical Parameter

Parameter	Min.	Regular	Max.	Unit
Working voltage	8.0		120.0	V
Working Consumption		10.0	12.0	mA
Stand-by Consumption		0.5	0.6	mA
Shutdown Consumption		40.0	50.0	uA
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(350A specification)		100		mA
Setting Value of Capacity	1.0		999.0	Ah
50A Shunt Current	0	50.0	75.0	A
100A Shunt Current	0	100.0	150.0	A
350A Shunt Current	0	350.0	500.0	A
Temperature Range in Application Environment	-10	20	60	°C
Weight (50A/100A/350A)		200/270/410		g
Appearance size		ø59*20		mm
Hole size		ø54.50		mm

Notes: This product shall be used with shunt (the internal parameters are different), the shunt of different specifications and the battery monitor are forbidden to be mixed. The heating components of shunt shall be installed at the ventilated position and be prohibited to cover! For long term use with max. current, please keep ventilating and cooling.

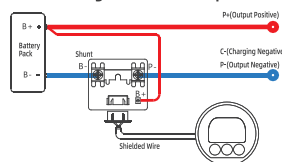
Instruction of Working Interface



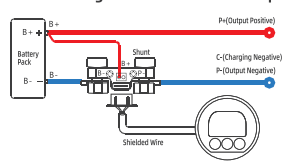
Connection Method

1. **First**, connect the shunt in series with the negative circuit of the battery pack. B- shunt 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 any B+ binding post on the shunt.
3. **Finally**, connect one end of the shielded wire to the shunt socket, and the other end connects to the battery monitor 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 shunt!**

* Connection diagram of 50A sampler:



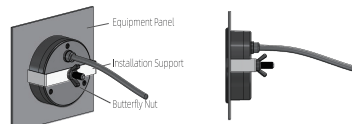
* Connection diagram of 100A/350A sampler:



Notes: The battery monitor is equipped with a shunt, 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 shunt must connect to the negative circuit of battery, the shunt cannot connect to positive circuit! It is forbidden to lengthen or cut the shield wire!

Installation Method

- Open a 55mm round hole on the installed equipment panel, put the battery monitor into the hole from the front of panel, and then tighten the installation supporter from the back with butterfly nut. As shown in the following figure:



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

Steps of Uses

1. Connect Wiring and check current

After completing the connection according to the (Connection Method), power on and the screen should be able to display. If there is no display, power off and check if the connection is correct. Then discharge or charge the battery and check whether the displayed current/power value is consistent with the actual value. If the error is large, please check again whether the wiring is correct. (Please make sure that all current flowing through the battery passes through the shunt.)

2. Set effective battery capacity

- If the effective capacity is known: For the setting method, see (Parameter Setting) → (Effective battery capacity), then set capacity to full* and fully charge the battery. After completing the above steps, it can be used normally.
- If the effective capacity is unknown (after the first use, replacement of the battery or the battery capacity decay): The actual effective capacity of the battery needs to be tested, and the testing steps are as follows:

- A. For the setting method, see (Parameter Setting) → (Effective battery capacity). Set the capacity as high as possible (for example, if the estimated battery is 20Ah, set it to 30Ah first);
- B. Empty the battery, set capacity to zero*, and then charge the battery;
- C. After the battery is fully charged, the capacity value (Ah) displayed on the battery monitor is the effective capacity of the battery.

- After testing the effective capacity, refer to (Parameter Setting) → (Effective battery capacity) for the setting method. After completing the above steps, it can be used normally.

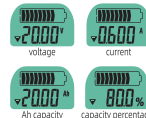
- *Set capacity to full: In the main interface, press (V) to display the percentage interface (%), and then long press (C) to set the capacity percentage to 100%.
- *Set capacity to zero: In the main interface, press (V) to display the percentage interface (%), and then long press (C) to set the capacity percentage to 0%.

Function Instruction

1. When charge/discharge, the battery monitor 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 shunt are reserved), the battery monitor 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 shunt are reserved), the battery monitor displays charging symbol ▲, it means charging.
4. When charge or discharge current value is smaller than backlight turn-off current, battery monitor enters into low consumption status, the backlight is off; and battery monitor will memorize capacity but not lose (namely power-down auto memory function).
5. The battery monitor 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 battery monitor may have errors when current severely changing, it affects on sampling accuracy.

Parameter Setting

- Display Interface Switch: Press (V) key to display present voltage; Press (C) key to display present current, then press (A) key to display present Ah capacity; Press (P) key to display present capacity percentage. As shown in the figure:



- Effective battery capacity: In the main interface, press (C) to display the capacity page (Ah), then long press (C) to enter the capacity setting interface, where the value flashes. Press (C) to decrease the value, press (A) to increase the value; long press to quickly and continuously adjust the value. Press (V) to save and exit.
- Zero capacity voltage setting (when the voltage is lower than the set value, the capacity is automatically set to 0%): In the main interface, press (V) to display the voltage interface (V), then long press (C) to enter the zero capacity voltage setting interface, where the value flashes. Press (C) to decrease the value, press (A) to increase the value; long press to quickly continuously adjust the value. Press (V) to save and exit. When the battery is discharged, if the voltage is lower than the set value, the capacity is automatically set to 0%. (Note: The default value of zero capacity voltage is 0V, which is invalid and generally does not need to be adjusted. If you need to set it, please ensure that the set value matches the actual charging and discharging voltage of the battery pack to avoid accidentally triggering it and causing the capacity to return to zero.)

Attention and Warranty

- The battery monitor cannot be under sunlight for a long time, cannot be under below -10°C and above 60°C for long periods of time, otherwise the lifetime of LCD screen of battery 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.