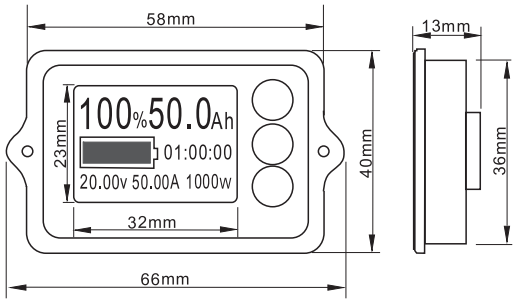
Battery Capacity Monitor

— Instructions —



Product Overview

This is a typical high precision current type battery capacity monitor (also known as coulometer), designed to test the voltage, current and capacity of a battery to help users know the state of a battery in real time. This device has a memory function. It is suitable for mobile and portable equipment using battery power e.g. RV's, Marine, Mobility Vehicles, Remote Power, Instruments, UPS etc.

Application

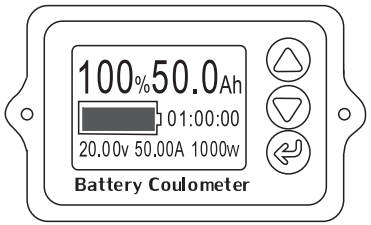
This product is suitable for Lithium batteries, Lithium Iron Phosphate batteries, Lead-Acid batteries and Nickel-Metal Hydride batteries with a working voltage from 8V to 80V.

Basic Parameters

Parameter	Min	Type	Max	Unit
Working voltage	8.0	80.0	120.0	V
Working dissipation		10.0	12.0	mA
Standby dissipation		0.5	0.8	mA
Sleep dissipation		50	60	uA
Voltage accuracy		±2.0		%
Current accuracy		±2.0		%
Capacity accuracy		±2.0		%
Backlight on current		40	50	mA
Backlight off current		30	40	mA
Preset capacity value	0.1		999	Ah

Parameter	Min	Type	Max	Unit
Current of 100A shunt	0.0	100.0	150.0	A
Current of 350A shunt	0.0	350.0	500.0	A
Temperature range	0	0-45	45	℃
Weight	20			g
Size (mm)	52*36*15.6			

Monitor Display Description

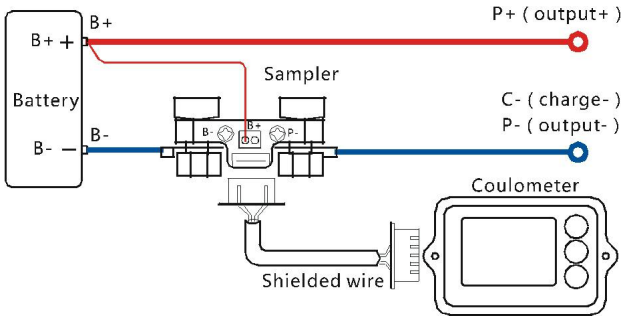


1. Upper left corner displays the percentage of the remaining capacity;
2. Upper right corner displays the remaining capacity (in Ah / mAh);
3. The battery symbol on the middle left, visualises the remaining battery capacity;
4. The remaining charging or discharging time is displayed on the middle right, with a maximum value of 99:00:00;
5. Voltage, Current and Power values displayed on the bottom.

Connection

You require a standard insulated wire (0.3-0.75mm²). One end of the standard wire connects to the Battery + (Pos) terminal & the another end connects to B+ on the current shunt. The B- terminal on the shunt connects to the Battery - (neg) terminal. P- on the shunt connects to P- of the output. Finally connect the shunt to the Coulometer display using the shielded wire / cable. (Supplied with Coulometer)

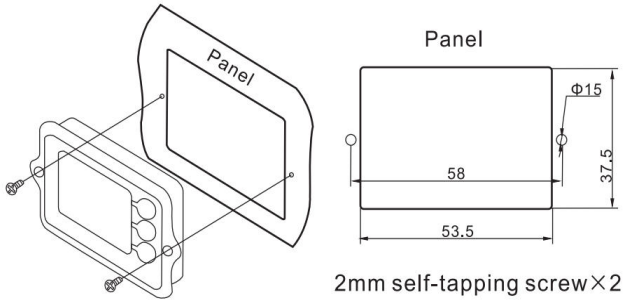
Connection diagram of 100A/350A shunt:



Attention: **IMPORTANT** Please connect as illustrated. The shunt must be connected to the negative circuit, it must not be connected to the positive circuit. If you wish to extend the shielded wire, you must use the same cable/wire specification.

Installation

Cut a rectangular opening to suit the display dimensions and & drill two screw holes on the side of the opening as per dimensions supplied. Insert the Coulometer from the front of the panel, Then fix the Coulometer with two self tapping screws from the front of the panel. As shown below:



Initial Setup

1. Connect and check the current：Complete the connection as shown and power on, the screen should display the battery voltage, current, capacity percentage and other information. If the screen does not display, then please check the wire connections. Next step, run a charge or discharge and check display current is consistent with actual current. If the difference is large please check the connections.

2. Capacity initialisation： At first use, the percentage and capacity displayed is not the actual correct value, you should initialise the capacity：Discharge the battery totally and hold the "▽" key for 3 seconds to set capacity zero. Alternatively, charge the battery fully and hold the "△" key for 3 seconds to set the capacity full. The coulometer is now calibrated, no need to repeat this except if you replace the battery.

3.Check and reset the actual capacity：If you find the display capacity doesn't match the actual battery capacity during use, then reset the actual capacity：Discharge the battery totally and hold the "▽" key for 3 seconds to set the capacity to zero. Then set the pre-set capacity as high as possible. Next, charge the battery fully, then the displayed capacity is the actual capacity. Finally set the pre-set capacity equal to the displayed capacity (Please refer to the Use setting section).

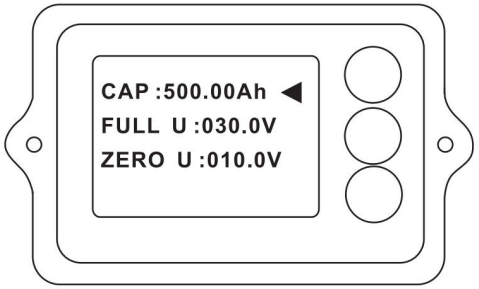
Product Operation

1. When charging or discharging, the coulometer must be operational, otherwise the capacity displayed will not be accurate.
2. Connect the load, if the discharge current is higher than 50mA, the display back-light will turn on (if back-light is blinking, the RS+ and RS- are inversely connected) indicating that the load is discharging. The display will show the discharge current and remaining discharge time. The time will fluctuate if the current fluctuate greatly.
3. Break the load, and connect the charger. When the charge current is higher than 50mA, the back-light will be blinking (if the back-light is solidly on ,the RS+ and RS- are inversely connected) indicating that the battery is charging. The display will show the charge current and remaining charge time.
4. When the charge or discharge current value < 40mA, the coulometer enters a lowpower state and back-light off. Besides, the coulometer will memory the capacity.
5. Because of high sensitivity, when the coulometer is in standby mode (battery has no input or output current), if it is interfered, by electromagnetic radiation (open or close inductive loads, such as a electric motor), the back-light will shortly open.
6. When the current changes frequently the date acquisition may produce error, and it will affect the accuracy.

User Settings

Preset capacity and voltage setting:

1. Press the "↵" key for 3 seconds in the main interface and enter the engineering mode;



2. Press the "△" or "▽" key to select the setting;
CAP—pre-set capacity : an initial capacity has been set at the factory, please set the value according to your batteries' capacity;
FULL U—full voltage : when the voltage is higher than this value, the charge percentage will be re-set to 100%;
ZERO U—zero voltage : when the voltage is lower than this value, the charge percentage will be re-set to 0% and the back-light will turn off.
Note: It is not mandatory to set the FULL U and ZERO U values. The default is 0V, which is the invalid / not set value. If you want to set these values, please ensure you understand the actual charge and discharge voltages of the batteries before proceeding.

3. Select "CAP" and press the "↵" key to enter the pre-set capacity setting. When each digit of the of capacity value flickers, press the"↵" key to set other digits. For each digit, press the "△" or "▽" key to increase or decrease the value;

4. Press the "↵" key for 2 sec to complete the setting; Other items function in the same manner.

5. Press the "△" and "▽" keys at the same time to exit the engineering mode.

Set capacity zero or full:

Before the first use or after changing the batteries , the memory capacity should be initialised to zero or full: In the main interface, hold the "▽" key for 3 seconds to set the remaining capacity to zero (the charge percentage will reset to 0%); hold the '△" key for 3 seconds to initialise the remaining capacity to full (the charge percentage will reset to 100%). Note that the previous values can not be restored.

Warning & Warranty

The monitor must not be exposed to direct sunlight for long periods of time or to an environment with large amounts of ultraviolet radiation, particular in winter (< -20℃) and summer (>60℃), otherwise it will shorten the life of LCD display.

AMPTRON® warrants each AMPTRON® branded Battery Capacity Monitor sold by AMPTRON® or any of its authorised dealers or distributors worldwide, to be free of defects from the date of sale for 12 months. The warranty period starts at the time of purchase. For further warranty details refer to our website at www.amptron.com.au