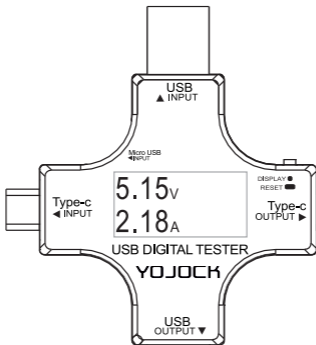


# USB Power Meter

## User Manual



## 1.Product Parameters

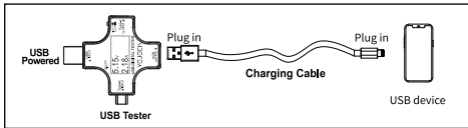
Voltage:	3.6-32.0V	USB D+ Voltage Range:	0-2.99V
Current:	0.00-5.1A	USB D- Voltage Range:	0-2.99V
Resistance:	1-999.9Ω	Display Type:	12800px IPS LCD
Capacity:	0-99999mAh	Refresh Rate:	>500ms/times
Energy:	0-99999mWh	Test Temperature:	0-80°C/14-140°F
Power:	0-150.0W	Operating Air Pressure:	80-106kPa
Time:	999h:59min:59s	Operating Humidity:	10-80RH
Input:	5.1A USB/Type-C	Operating Temperature:	0-60°C
Output:	USB/Type-C	Display Resolution:	160*80

## 2.Operating Instructions of Button

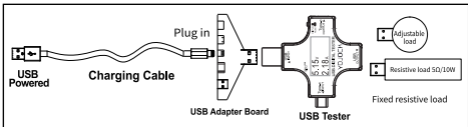
1. Short Press to switch different interface;
2. Quick 2 Press: Reset capacity (mAh);
3. Quick 3 Press: Reset energy(Wh);
4. Quick 4 Press: Reset timing (00:00:00);
5. Quick 5 Press: Change group number (NO.X, total 10 groups of data);
6. Long Press to reset capacity, energy and timing of current group(mAh, Wh, 00:00:00);
7. On the system interface, short press the key to switch different setting options, long press the key to select and enter the option;
8. When the short key is pressed to the over voltage (>32.0V), low voltage(<0.00V) and over current(>8.00A) setting interface, the value can be adjusted by quickly one-clicking (-reduce) or quickly double-clicking (+add).

(Note: Please don't calibrate the voltage and current if without standard instruments)

### 3. Test the Charging Speed and Quality of the Charging Cable



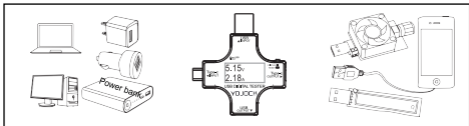
1. Connect as shown above, with the power supply and load unchanged, replace the cable with a different one, the higher the current, the better the quality of the cable and the faster the charging speed.



2. Connect as shown above, under the condition of the same power supply and load, change different data cable, the usb tester shows that the higher the voltage, the smaller the voltage drop of the data cable, the better the quality.

**Special Note:** If you want to use the USB tester on a USB-C device, insert the small Micro USB adapter the side hole of the USB tester to trigger the USB-C PD charging function.

## 4. Test the Maximum Output Current of the Charger



## 4. Test the Capacity of the Power Bank and the Techniques

Firstly, fully charge the power bank, then plug the tester in, zero the capacity and power by pressing the button, then plug in the electronic load or mobile phone and start discharging the power bank until it runs out of power, automatically power off and save the data, then the tester can be powered up again to read the accumulated capacity and power value, which is the approximate value of the capacity and power of this power bank. As the tester has an internal power-off memory function, the discharge process can be completed in one go, or in several passes until the power bank is depleted and then the capacity value can be checked.

**Warm tip:** As most of the nominal capacity values of power bank on the market are currently marked as the value of the battery cell inside the machine, and the physical capacity difference in the voltage boost from 3.7V to 5V or 9V or even other voltages as well as the loss in the boost, the capacity value under the test voltage above 5V is much less than the nominal value. To test the authenticity of the nominal value of the capacity of the power bank, the measured capacity value needs to be multiplied by about 1.35 to be approximately equal to the nominal value of the power bank itself, which can only be used as a relative value and not as an absolute value.

## 6. Test the Phone Battery Capacity

The charging voltage of the mobile phone is 5V or 9V, while the internal voltage of the mobile phone battery is about 3.7V. Calculate the battery capacity of the mobile phone by the following formula: charging capacity \* 90% / 3.75V = battery capacity.

For example, the test power is 27Wh, and the formula is: 27Wh (power) / 3.75V (battery voltage) x 90% (conversion efficiency) = 6.48Ah x 1000 = 6480mAh.

## 7. Charging Protocol Recognition

Support charging protocols: SCP, FCP, AFC, APPLE, DCP, SAMSUNG, QC2.0, QC3.0, PD3.0, PD2.0

## 8. Test USB Voltage/Current/Power/Capacity/Charging Time

When connected and powered on, it can monitor and display the voltage, current, power, charge, capacity and accumulated time of flowing current through the USB cable in real time.

**Please note: The time display of the tester refers to the time timing starting when there is a current display, if the current is 0, the system does not calculate the time accumulation.**

## 9. Main Functions

The voltage, current, power, capacity and other electrical performance indicators under the USB interface can be tested, including but not limited to the following test cases:

1. Test the charger: the corresponding charger parameters are marked out, with the load to test its maximum output current to determine if it's good or not.

2. Test the quality of the data line: In the case of the same mobile phone and charger, use this tester to test the current of different data lines to determine which data line charges faster, and the data line with higher current charges faster.
3. Test the power bank: When the power bank is fully charged, you can get how much mAh capacity the power bank can hold when it is quickly discharged with the load.
4. Mobile phone fast charging protocol support parameters table: This tester internal protocol and data line is bypass, mobile phone fast charging actual charging how much the tester shows how much, will not make changes to the original fast charging. You can see the actual use of the user through the fast charging pictures in the comments.
5. Support for automatic power failure data saving function.