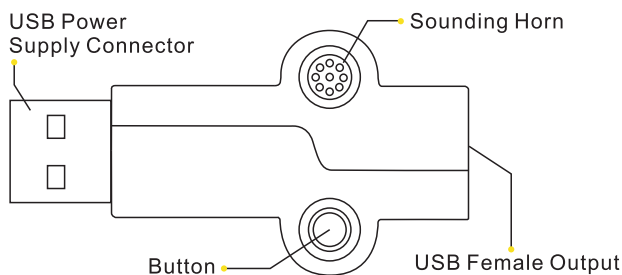


USB Testing Meter for Monitoring Current Voltage and Capacitance



Sounding Horn

- Fast "Beep" Sound: overvoltage/overcurrent warning
- Slow "Beep" Sound: undervoltage warning
- More Hasty "Beep, Beep" Sound: electric leakage warning

Button

- Short pressing the button successively would accordingly displays the different specified interfaces including current and voltage display page, capacitance and electric energy display page, temperature display page, and back to homepage display
- Long pressing would clear the capacitance and electric energy on its display page
- Double pressing would clear the capacitance on home page
- Triple pressing would clear the electric energy on home page
- Quadruple pressing would clear the accumulative time on home page
- Quintuple pressing could operate timing shutdown setting on home page
- **Vocal Alarm Protection:** During real-time monitoring, when there is overvoltage or undervoltage, or overcurrent, this unit would automatically sound an alarm siren and at the same time activate the inside electronic switch to shut off the output for the purpose of safety

Technical Parameters:

- Input Voltage: DC 3 -25V
- Voltage Range Measuring: 4-25V
- Current Range Measuring: 0-5.1A (Please keep less than 3A if stays at high current for a long time)
- Temperature Range Measuring: 0-80°C (32-176°F)
- Accumulative Electric Energy: 0-999.99Wh
- Accumulative Capacitance: 0-99999Mah
- Accumulative Time: 999 Hours
- Voltage Resolution: 0.01V
- Current Resolution: 0.01A
- Self-consuming Current: < 8mA
- Measuring Accuracy: 1% (+/- 2 bytes)
- Alarm Threshold Protection by Default: if the voltage <4.5V or the voltage >13.8V and the current > 5.1A, there would make an alarm and shut off output if the above occurs

Testing Capacitance and Electric Energy of Power Bank:

- First, make sure the power bank is fully charged, then have this tester plugged into it and clear the capacitance, electric energy
- Next, start discharging the power bank by plugging a USB device into the tester till running out. Thus, the displaying capacitance and electric energy is namely that of the power bank
(PS: Since there is Non-volatile memory for capacitance and electric energy, the discharge process could be conducted once for all, or conducted in multiple times)

Testing the Maximum Output Current of the Charger:

- To select an appropriate discharging electronic load with corresponding current based on the nominal max output current that is literally requested by the charger
- Power on and discharge for about 6 hours, during which if the voltage and current is stable and also the charger's temperature is less than 50°C or so, the literally nominal output current is correct and able to meet the charging rate. Conversely, if the voltage decreases and current differs a lot, or displays high temperature, even alarm flashing or no output, it means that the charger is unqualified
- The same way to measure other USB devices
- Note 1: The literally nominal current of the charger is not the current while charging the cell phones, but referred to the max output current under the max electronic load. Therefore, with different electronic load comes different current, to figure out the actual current by Ohm's Law

- Note 2: While charging the mobiles phones, it is normal that there would occur fluctuating current at different stages because this tester only displays the actual flowing current. So, it is not anything wrong with the test if the tester displaying current is not the same with the literally nominal current

Testing Charging Rate of the Data Cable:

- When testing with the cell phone, assuming the same power supply and cell phone, when the data cable was changed, the greater current displays, the faster charging the data cable possesses, thus the better quality
- When testing with an electric load, assuming the same power supply and electronic load, when the data cable was changed, the higher voltage displays, the smaller voltage drop the data cable possesses, thus better quality

Customizing Calibration Parameters in the Background:

- Long press the button first while then have the tester powered on to enter into Admin Mode, and the following short pressing could respectively view the 6 kinds of specified settings for current calibration, voltage calibration, high voltage protection threshold, low voltage protection threshold, over-current protection threshold and capacitance calibration
- When viewing, double pressing enters into corresponding setting with screen flickering, and then single pressing to decrease or double pressing to increase, in which could achieve continuous decrease or increase by long pressing. After setting, till the "Beep" sounds, the new calibration would be saved and log out with flickering stopping
- In Admin Mode, a 3-second long pressing would restore factory default at once

Different Calibration Methods Described as Follows:

- **Current Calibrating:** Double pressing in the specified interface with screen flickering means the zero calibration is completed. Then start to load a standard 1A electronic load(1A constant current load would be better); while double pressing again, the calibration is automatically set to 1.00A. Till the "Beep" sounds and flickering stops, the new current calibration would be saved, which would be applied to work for later
- **Voltage Calibrating:** Adjust digital power to 5V standard power supply, and double pressing in the specified interface with screen flickering; while double pressing once again, the calibration is automatically set to 5.00V. Till the "Beep" sounds and flickering stops, the new current calibration would be saved, which would be applied to work for later
- **High Voltage Protection Threshold:** By default, there would be sort of protection if the voltage is greater than 13.8V. Double pressing in the specified interface with screen flickering. Meanwhile, double pressing to increase or single pressing to decrease. For 3 seconds later after setting, the screen stops flickering and the calibration is saved (Range: 1.0-30V, set by 0.1V step by step)
- **Low Voltage Protection Threshold:** By default, there would be sort of protection if the voltage is less than 4.5V. Double pressing in the specified interface with screen flickering. Meanwhile, double pressing to increase or single pressing to decrease. For 3 seconds later after setting, the screen stops flickering and the calibration is saved. (Range: 0.5-24V, set by 0.1V step by step)
- **Over-current Protection Threshold:** By default, there would be sort of protection if the current is greater than 5.1A. Double pressing in the specified interface with screen flickering. Meanwhile, double pressing to increase or single pressing to decrease. For 3 seconds later after setting, the screen stops flickering and the calibration is saved (Range: 0.5-10A, set by 0.1A step by step)
- **Capacitance Calibrating:** By default, the capacitance measuring coefficient is "×1". Double pressing in the specified interface with screen flickering. Meanwhile, double pressing to increase or single pressing to decrease. For 3 seconds later after setting, the screen stops flickering and the calibration is saved. (Range: 0.5-1.5, set by 0.01 step by step)

Setting Timing Shutdown:

- Quintuple pressing in the homepage for get into the timing shutdown interface with the mark "off" below the screen flickering. At this present, double pressing to increase or single pressing to decrease. Short pressing turns the "off" to 24:00, to23:00, to 22:00, till to 1:00, finally to "off"
- After setting completed, till the "Beep" sounds and flickering stops, the new timing shutdown setting would be saved. When there is current flowing next time, it would start count-down and end when the count-down shows zero, thus there is " Beep" sound and the output would be cut off for safe protection

Notes:

- If there were nothing displaying or no sound, which might fail to power up the USB meter, please check if the USB port is connected well
- If there were inaccurate tested capacitance, please note there are different capacitance computing methods for charging cell phone or discharging power bank