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Quick Guide

UT8806E Desktop Digital Multimeter

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File Version

UT8806E20230801-V1.00

Statement

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1. General Safety Summary

The instrument is designed to meet the safety requirements of GB4793 safety requirements for electronic measuring instruments, IEC/EN61010-1, EN61010-2-030 pollution class 2, overvoltage CATI 1000V, CATII 300V and double Insulation; and complies with the IP65 standard for waterproofing and dustproofing.
This manual contains information and warnings that must be observed to keep the instrument in a safe condition and ensure safe operation.

1. **Use Proper Power Cord.** Use only the power cord specified for this product and certified for the country of use, and make sure that no metal parts are exposed and the insulation is broken.
2. **Ground the Product.** This product is grounded through the grounding conductor of the power cord. To avoid electric shock, the grounding conductor must be connected to earth ground. Before making connections to the input or output terminals of the product, ensure that the product is properly grounded. The signal ground on the rear panel of the product is the same as the ground potential.
3. **Check the Wire.** Check if the insulation of the test lead is damaged or if the lead is exposed; check if the test lead is on, if there is any damage to the lead, replace it before using the instrument.
4. **Observe All Terminal Ratings.** The voltage applied between the terminals or any one of the terminals and the grounding point must not exceed the rated value indicated on the instrument.
5. **Do Not Touch Live Part.** Do not touch exposed connection wires, unused inputs or circuits being measured while the instrument is in use. When measuring voltages higher than 60V DC or 30V AC, be sure to exercise caution and remember to keep your fingers away from the meter's guard position to prevent electric shock.
6. **Do Not Operate with Suspected Failures.** If you suspect that this product is malfunctioning, contact UNI-T's authorized service personnel for testing. Any maintenance, adjustment, or replacement of parts on this product must be performed by UNI-T authorized service personnel.
7. **Avoid Exposed Circuitry.** Do not touch exposed connections and components when power is present.
8. **Do Not Operate Without Covers.** Do not operate this product with covers or panels removed, and do not adjust the internal circuit.
9. **Use Proper Fuse.** Use only the fuse type and rating specified for this product.
10. **Use Proper Over-voltage Protection.** Make sure that no overvoltage (e.g. caused by lightning) reaches the product, as this may result in electric shock to the operator.
11. **Avoid Severe Environment.** Avoid using the instrument in high temperature, high humidity, flammable, explosive and strong electromagnetic environments.
12. **Disconnect the Power Supply.** Before testing the impedance, conduction, diodes, or capacitance, disconnect power and discharge all high voltage capacitors.

Input Terminal Protection Limit

1. Main Input Terminal (HI and LO)
   HI and LO input terminals are used for voltage, impedance, capacitance, continuity, frequency and diode test measurements. These two terminals define the following two protection limits.
   1) Protection limit from HI to LO, which is 1000 VDC or 750 VAC. This is also the maximum voltage that can be measured. This limit can also be expressed as a maximum of 1000 Vpk.

2) Protection limit from LO to ground. The LO input terminal can be safely "floated" to a maximum of 500 Vpk with respect to ground. The protective limit of the HI terminal is a maximum of 1000 Vpk with respect to ground. Therefore, the sum of the "floating" voltage and the measured voltage must not exceed 1000 Vpk.

2. Sampling Terminal (HI sense and LO sense)

HI Sense and LO Sense terminals are used for four-wire impedance test and measurement. These two terminals define the following two protection limits.

1) Protection limit from HI Sense to LO Sense. Protection limit of HI Sense and LO Sense are 200 Vpk.
2) Protection limit from LO Sense to LO. Protection limit of LO Sense and LO are 2 Vpk.

3. Current Input Terminal (mA and A)

1) The mA and LO terminal are used to measure the current test below 200mA. The rear panel fuse provides a maximum protection limit of 250mA for current flowing through the mA terminal.
2) The A and LO terminal are used to measure the current test from 200mA to 10A. The rear panel fuse provides a maximum protection limit of 10A for current flowing through the A terminal.

Notes

The voltage at the current input terminal is about the same as the voltage at the LO terminal. To maintain good protection, this fuse can only replace with a fuse of the specified type and rating.

IEC Measurement Category II Overvoltage Protection

To avoid the risk of electric shock, the UT8806E digital multimeter provides overvoltage protection for electric mains connections that meet both of the following conditions.

1. The HI and LO input terminals are connected to the electric mains under Measurement Category II conditions (described below).
2. The maximum line voltage of the electric mains is 300 VAC.

Warnings

IEC measurement category II includes electrical installations connected to the mains via a socket on a branch circuit. These devices include most small appliances, test equipment, and other devices plugged into branch circuit sockets.

Measurement of UT8806E Digital Multimeter

The HI and LO input terminals are connected to the electric mains (up to 300VAC) in these devices, or to branch circuit socket. However, the HI and LO input terminals of the UT8806E cannot be connected to the electric mains in permanently installed electrical devices, such as main breaker panels, sub-panel breakout boxes, or permanently wired motors. These devices and circuits are susceptible to overvoltage that exceed the protection limits of the UT8806E.

Notes

The voltage above 300VAC can only be measured in circuits that disconnected from the electric mains. However, transient overvoltage also exist in circuits when disconnected from the electric mains, and the UT8806E can safely withstand incidental transient overvoltage up to 2500 Vpk.

Do not use this device to measure circuits where transient overvoltage may exceed this level.

2. Quick Guide

This chapter is to introduce the preparation of the UT8806E digital multimeter and simply introduce the front/rear panel and display screen.

2.1 General Inspection

Before you use a new UT8806E multimeter, it is recommended that you check the instrument as follows.

(1) **Check for damage caused by transportation**

If you find that the packing carton or protective foam cushion is badly damaged, keep it until the complete unit and accessories have passed the electrical and mechanical tests.

(2) **Checking accessories**

If you find that an accessory is missing or damaged, contact the UNI-T distributor responsible for your business or the local UNI-T office.

(3) **Checking the complete unit**

If you find that the instrument is visually damaged, that the instrument is not working properly, or that it fails a performance test, contact the UNI-T distributor responsible for the operation or the local UNI-T office.

If the instrument is damaged due to transportation, please retain the packaging. Notify the shipping department and the UNI-T distributor. UNI-T will arrange for repair or replacement.

2.2 Before Use

To perform a quick verification of the instrument's normal operations, please follow the steps below.

(1) Connect to the Power Supply

The power supply voltage range is from 100 VAC to 240 VAC, the frequency range is 45 Hz to 440 Hz. Connect the multimeter to the power supply line that equipped with the product or any power supply line that meets the local country standards. When the multimeter is connected to the invalid power supply, the indicator of the power soft switch button  at the lower left corner of the front panel will not be lit, and the soft switch button has no effect at this time; when the multimeter is correctly connected to the valid power supply, the indicator of the power soft switch button at the lower left corner of the front panel of the multimeter will be red, and the multimeter can be turned on by pressing the soft switch button at this time.

(2) Boot Check

Press the soft power button  and the light should change from red to green, and UNI-T will display on the screen. The multimeter will show a boot animation, and then enter the normal interface.

Warning: To avoid electric shock when using the probe to measure high voltage, please ensure that the probe insulation is in good condition and avoid physical contact with any metallic part of the probe.

3. Adjusting Handle

The multimeter's handle can adjust to three positions by appropriate strengths, as shown in Figure 1-1, 1-2 and 1-3.

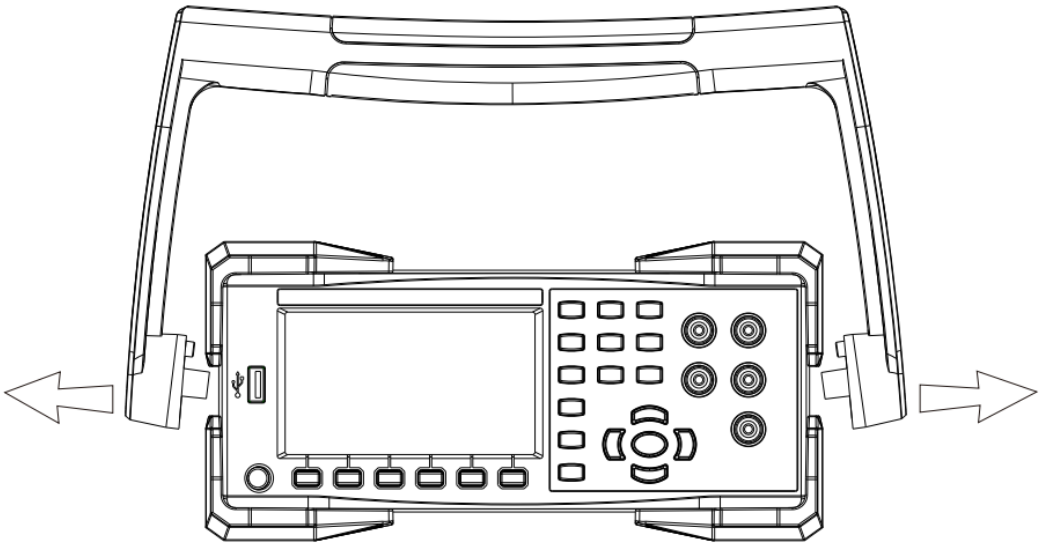


Figure 1-1 Adjusting Handle

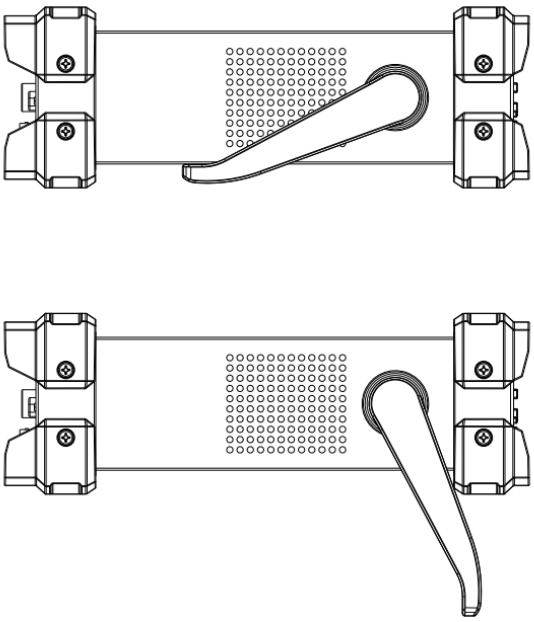


Figure 1-2 Holding Down Position

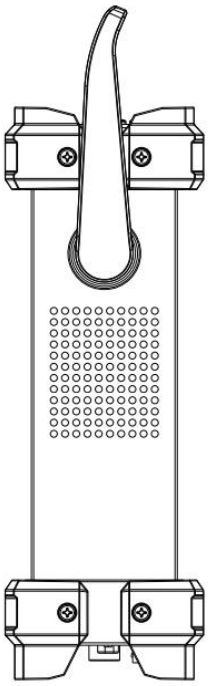


Figure 1-3 Moving Position

4. Front Panel

The UT8806E digital multimeter provides the user with a simple and clear front panel. These controls are displayed in logical groupings, and basic operations can be performed by simply selecting the appropriate button, as shown in Figure 1.

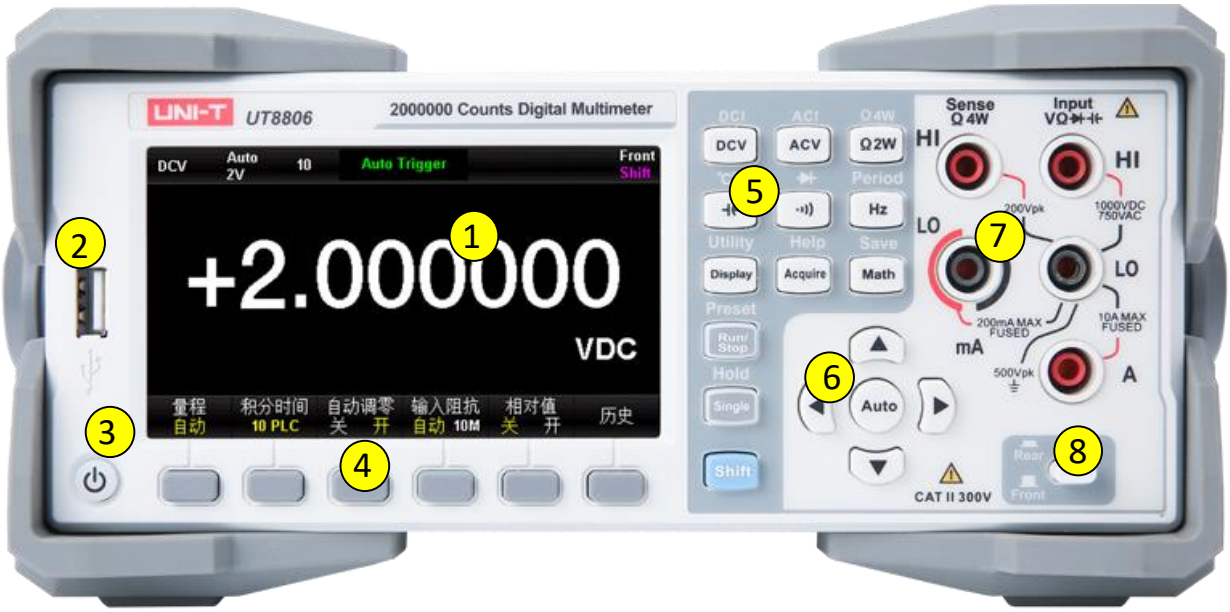


Figure 1 Front Panel

1：LCD

2：USB Host

3：Power Button

4：Menu Operation Key

5：Measurement and Auxiliary Function Key

6：Range and

7：Signal

8：Front/rear Input

Note: To learn more about the front panel, refer to Chapter 1, Front panel of the user's manual.

5. Rear Panel

The rear panel of the UT8806E digital multimeter provides multiple ports, including USB Device, RS-232C, LAN and GPIB (option) as shown in Figure 3.

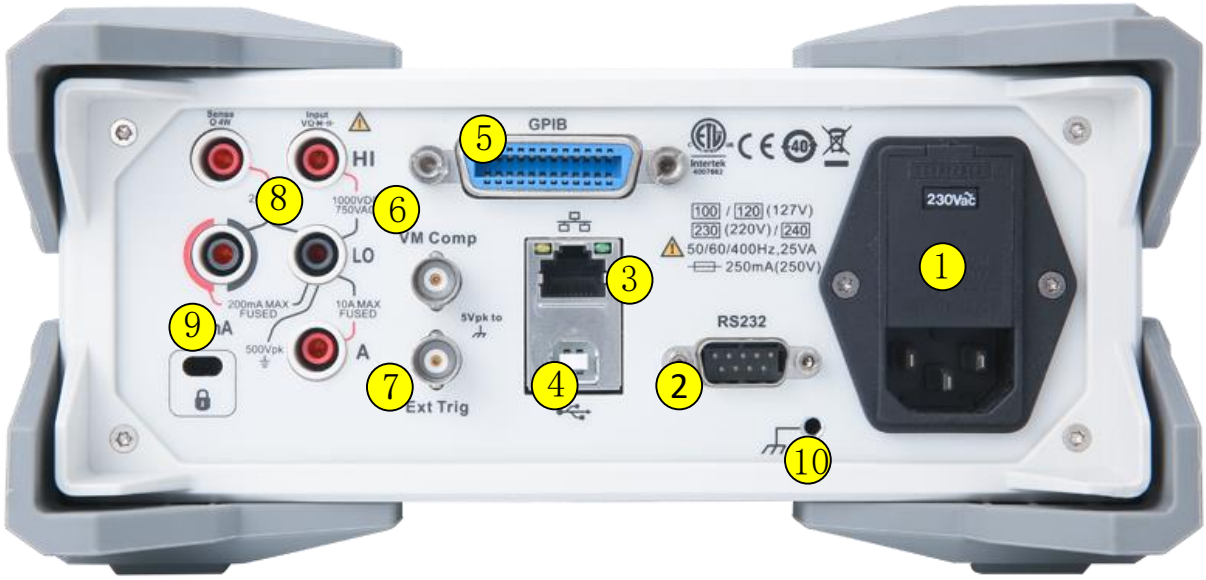


Figure 2 Rear Panel

1：Power Input Port

2：RS-232 Communication Port

3：RJ45 Internet Communication Port

4：USB-DEVICE Port

5：GPIB Port

6：VMC Signal Output Port

7：Ext TRIG Signal Input Port

8：Signal Input

9：Lock Hole

10：Ground Terminal

Note: To learn more about the front panel, refer to Chapter 1, Rear panel of the user's manual.

6. User Interface

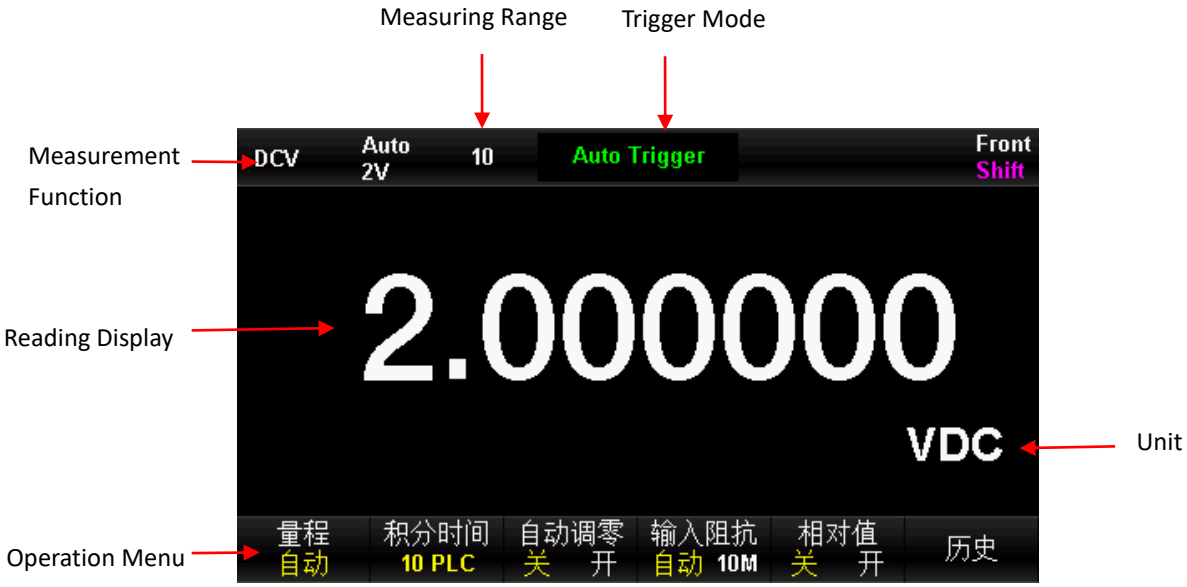
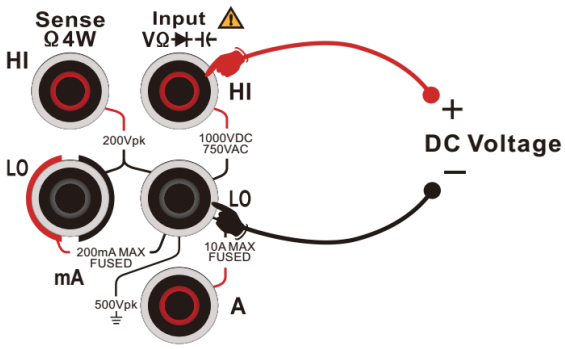


Figure 3 Display Menu

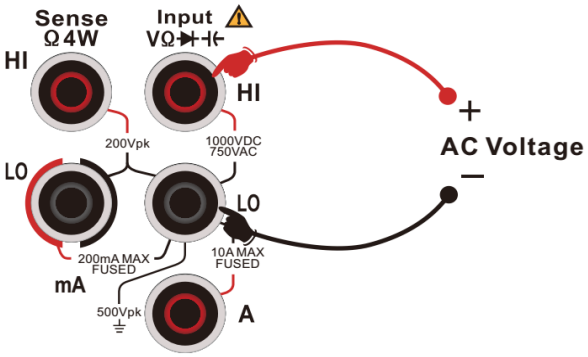
7. Measurement Connection

This multimeter provides various measurement functions. After selecting the desired measurement function, connect the signal (device) under test to the multimeter as shown in the following figure.

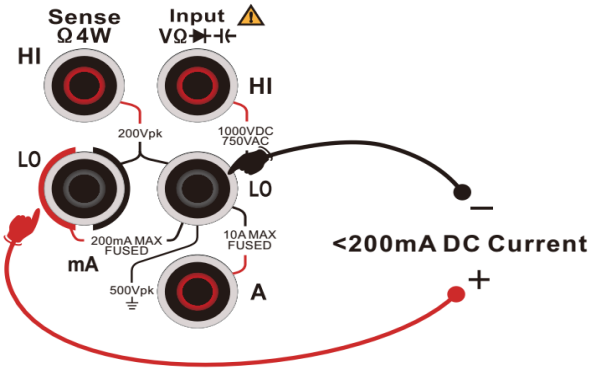
DC Voltage Measurement



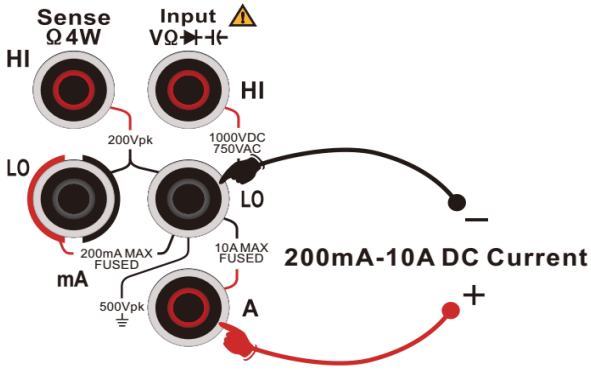
AC Voltage Measurement



DC <200mA Current Measurement

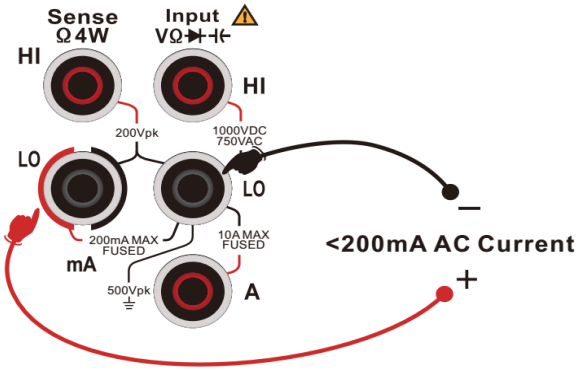


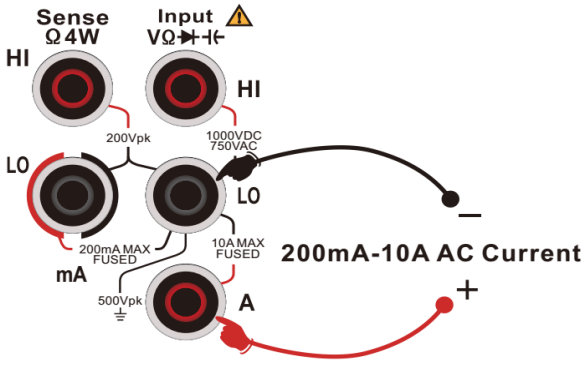
DC 200mA-10A Current Measurement



AC <200mA Current Measurement

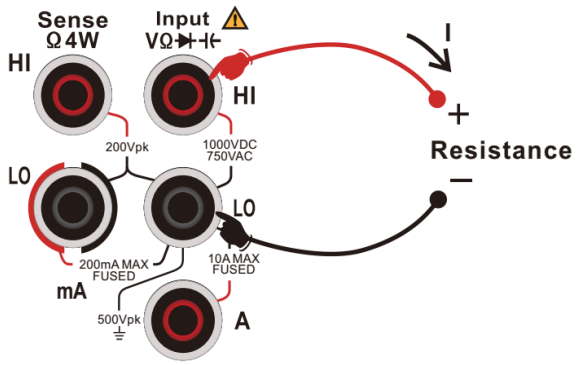
AC 200mA-10A Current Measurement



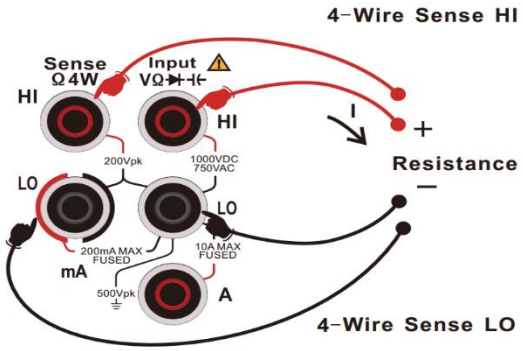


2-wire Resistance Measurement

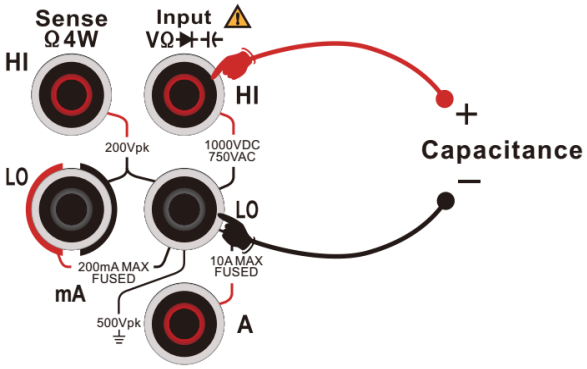
4-wire Resistance Measurement



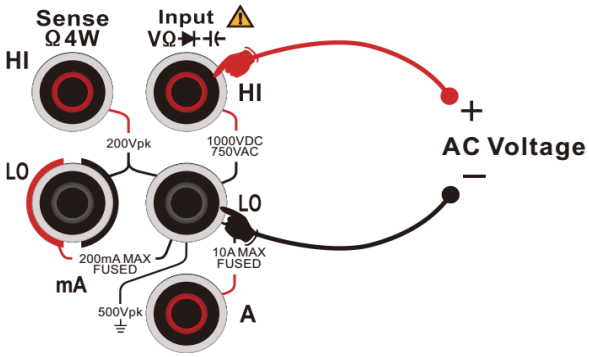
Capacitance Measurement



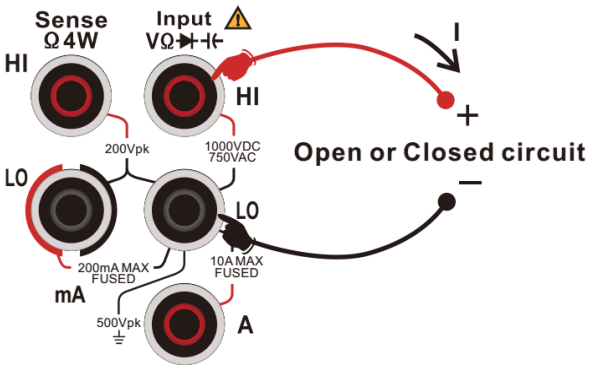
Frequency/Period Measurement

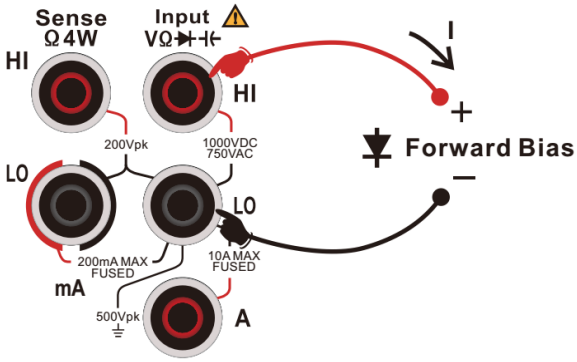


Continuity Measurement

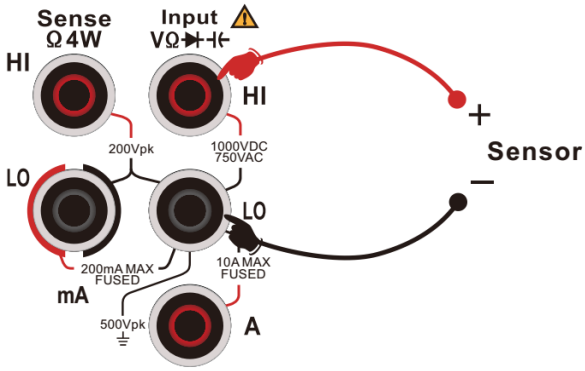


Diode Measurement





Temperature Measurement



8. Built-in Help

If you need to get the built-in help information of this product, press [Shift] + [Acquire] to enter the help system at first, then press the arrow keys to select the desired help item, and finally press [OK] to view the corresponding help information.

1. Basic Measurement
2. Temperature Measurement
3. Capacitance Measurement
4. Mathematical Operation
5. Dual Display
6. Storage Function

9. Troubleshooting

The following is a list of malfunctions and troubleshooting methods that may occur during the use of the digital multimeter. When you encounter these faults, please follow the appropriate steps to deal with them, if the problem cannot be fixed, please contact UNIT for assistance.

1. If the multimeter remains black without any display when the power switch is pressed.
   (1) Check if the power plug is properly connected.
   (2) Check if the power switch on the rear panel is turned on.
   (3) Check if the fuse of the power input on the rear panel is fusing. If it is fusing, replace the fuse as required (250mA/250V, slow-blow fuse).
   (4) After making the above checks, restart the instrument.
   (5) If the product still does not work properly, contact the UNI-T Service Center for assistance.
2. When connect a current signal, no change in reading.
   (1) Check if the probe is properly inserted into the current jack and LO jack.
   (2) Check if the current fuse on the rear panel probe is fusing.
   (3) Check if the measurement scale is correctly switched to DCI or ACI.
   (4) Check if the input is ACI but the scale is in DCI.
3. When a DC power signal is connected, the reading display is not normal.
   (1) Check if the probe is correctly inserted into the current jack and LO jack.
   (2) Check if the current fuse on the rear panel probe is fusing.
   (3) Check if the measurement scale is correctly switched to DCI or DCV.
   (4) Check if the input is DCI but the scale is in ACI.
4. USB cannot be recognized.
   (1) Check if the USB can work normally.
   (2) Make sure the USB is USB Flash, this instrument does not support hard disk type USB.
   (3) Make sure the capacity of the USB is too large, the multimeter recommends using a USB not more than 128GB.
   (4) After restarting the instrument, insert the USB again for checking.
   (5) If the USB still does not work properly, contact the UNI-T Service Center for assistance.

10. Appendix Contact Us

If the use of this product has caused any inconvenience, if you in mainland China you can contact UNI-T company directly.
Service support: 8am to 5.30pm (UTC+8), Monday to Friday or via email.
Email address: fosh@uni-trend.com.cn
For product support outside mainland China, please contact your local UNI-T distributor or sales center.
Many UNI-T products have the option of extending the warranty and calibration period, please contact your local UNI-T dealer or sales center.

To obtain the address list of our service centers, please visit our website at URL: http://www.uni-trend.com