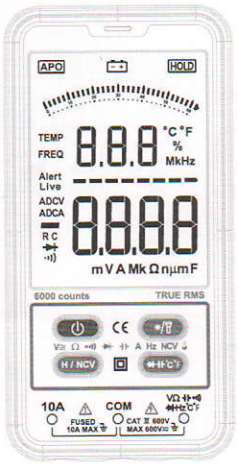
User Manual

6000 counts
TRMS Smart Digital Multimeter



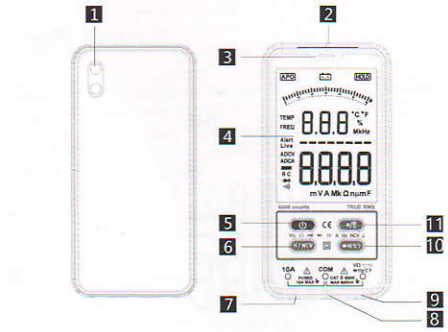
Introduction

This meter is a portable smart meter that intelligently recognizes DC voltage, AC voltage, resistance, on-off buzzer, frequency, AC and DC current, etc., and automatically switches to the corresponding range. It can also manually switch the gears of diode, capacitance, temperature, etc. . With powerful functions, ordinary users can easily measure various electrical parameters without professional knowledge of physics.

Large-screen LCD display and 6000 display make readings more accurate.

It meets the safety standards of IEC 61010 for 600V CATIII and pollution degree 2.

Panel schematic



1: Illumination

2. NCV sensing area

3. Buzzer &NCV indicator

4. LCD display

5. Power button

6.Data hold and NCV button

7. 10A input socket

8. COM input socket

9. V/Ω input socket

10. Diode,Capacitance and temperature switch buttom

11. Backlight and Illumination button

Safety Information

Safety Instructions

*When using this meter, the user must comply with all the standard safety regulations in the following two aspects

A: Protection against electric shocks

B: Preventing the misuse of the instrument's safety procedures

*To ensure your personal safety, please use the test pen provided with the meter, check before use, and make sure they are intact.

Safety Symbols

⚠	Warning
~	AC (alternative current)
⎓	DC (direct current)
⏚	Ground
⧈	Double insulation
CE	European union standard
ϟ	High voltage warning
CAT III	III category overvoltage protection

Safety Notices:

- The use of meter instruments near devices with large electromagnetic disturbances will be unstable and may even cause large errors.
- Do not use when the appearance of the meter or the test pen is broken.
- If the meter is not used correctly, the safety functions provided by the meter may fail.
- Care must be taken when working around bare conductors or buses.
- Do not use this instrument near explosive gas vapor or dust.
- The correct input function must be used to measure the range.
- The input value must not exceed the limit of the input value specified for each range to prevent damage to the instrument.
- Do not touch the unused input when the instrument is connected to the circuit under test.
- When the measured voltage exceeds 60 VDC or 30 VAC, use caution to prevent electric shock.
- When measuring with a test pen, place your finger behind the guard ring of the test.
- Before converting the range, it must be ensured that the test pens have left the circuit under test.
- Before carrying out a resistance, diode, capacitance measurement or continuity test, the circuit under test must be powered off and all high-voltage capacitors in the circuit under test should be discharged.
- Do not measure the resistance on a live circuit or perform buzzer test.
- Before conducting the current measurement, the fuse of the meter should be

checked. Before connecting the meter to the circuit under test, the power of the circuit under test should be turned off.

- When performing TV repairs or measuring power conversion circuits, care must be taken in the high-amplitude voltage pulses in the circuit under test to avoid damage to the meter.
- The instrument uses two pieces AAA 1.5V batteries as the power supply. The battery must be properly installed in the battery compartment of the meter.
- When the battery with low voltage symbol "🔋" appears, replace the battery immediately. Insufficient battery power can make the meter read incorrectly, which may result in electric shock or personal injury.
- When measuring voltages, do not exceed 600V. Do not use the instrument when the instrument's housing or part of the housing is removed.

Maintenance:

- When opening the instrument case or removing the battery cover, pull out the test pen first.
- The specified replacement parts must be used to service the meter.
- Before opening the meter, all relevant power must be disconnected. At the same time, you must ensure that you do not have static electricity to avoid damage to the meter.
- Instrument components, instrument calibration and maintenance operation instructions are operated by professionals.
- When opening the instrument housing, some capacitance in the instrument must be noticed. Even after the instrument is turned off, dangerous voltages are kept.
- If the instrument is observed any abnormality, the table should be immediately stopped and sent for repair, and to ensure that it can not be used before inspection qualified.

When not in use for a long time, please remove the battery, and avoid storing in high temperature and humidity.

Input protection measures

- The limit voltage is 600V when the voltage is measuring.
- The limit voltage is 250 ACV or the equivalent RMS voltage when the capacitance or the diode is measuring.

Battery Replacement and Accessories

Replace batteries to avoid electric shock or personal injury caused by erroneous readings. When the symbol "🔋" appears on the instrument display, replace the battery immediately. To avoid electric shock or personal injury, turn off the battery cover and replace it with a new one before turning it on. The test pen has been disconnected from the measurement circuit.

Please follow the steps below to replace the battery:

1. Turn off the power of the instrument and pull all the test pens out of the input socket
2. Use a screwdriver to loosen the screws fixing the battery.

3. Remove the battery cover and take away the old battery
4. Replace the new batteries 2*1.5V AAA
5. Install batteries cover and close the screws.

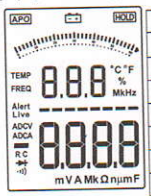
Accessories

1.An instruction
2.A pair of test leads
3.Two pieces of AAA batteries
4. Temperature probes

Specifications

Function	Range	Resolution	Accuracy	Note
DCV	0.8V-600V	0.001V	±（0.8%+5）	Min Input Voltage:0.8V Max Input Voltage:600V Resistor Impedance:10M
ACV	0.5V-600V	0.001V	±（1.0%+5）	Min Input Voltage:0.5V Max Input Voltage:600V Resistor Impedance:10M
Resistor	0Ω-60MΩ	0.1Ω	±（1.0%+5）	Protection:600V AC/DC
Direct Current	5mA-10A	0.1mA	±（2.0%+5）	10A fuse
Alternative Current	6mA-10A	0.1mA	±（2.0%+5）	10A fuse
Temperature(℃/℉)	-20℃ ~530℃ (-4℉-986℉)	1℃/1℉	±(3. 0%+5)	Overload protection 250V AC/DC
Capacitance	0~100mF	0.00lnF~0.1mF	±(4. 0%+5)	Overload protection 250V AC/DC
HZ	10Hz-2000Hz	0.01Hz-1Hz	±（2.0%+5）	VPP more than 2V RMS
Max display	6000			
Auto Power-off	√			No operation for 10 mints
Backlit	√			Turn off after 30 seconds
Illumination	√			Turn off after 30 seconds
Diode	√			Voltage forward drop 2.0V
Buzzer				Protection:600V AC/DC
Buzzer Indicator	√			
NCV	√			"----" refers change from strong to weak
NCV Indicator	√			
True RMS	√			45-2KHz
Low Battery	√			

Display symbol description



Symbol	Description
	Battery low voltage display
APO	Auto power off
—	Negative polarity input indication
ACV/ACA	Alternative input indication
DCV/DCA	Direct input indication
	In continuity test mode
	In diode test mode
HOLD	Data hold mode
Alert Live	Non-contact voltage detection mode
mA、A	Current unit
Hz	Frequency unit
V	Voltage unit
MΩ、KΩ、Ω	Resistance unit
TEMP	Temperature unit
nF、μF、mF	Capacitance unit

Technical Datasheet

Comprehensive indicators

*Operating conditions:

600V CAT III Pollution grade: 2

Height: under 2000m

Working temperature: 0-40℃（＜80%RH）

Storage temperature: -10-60℃（＜70%RH, take off battery）

*Test or calibrate surrounding temperature: 20℃±2℃

*The biggest voltage between measurement end and ground: 600V

*Conversion rate: about 3s/second

*Display:6000 counts LED display

*Overload: 'OL' displayed

*Low voltage display of battery: "" displayed when the working voltage is low

*Input polarity indicator: "−" shown automatically

*Battery:2 X1.5V AAA

*Size: 156mm (L)*77mm (W)*19.5mm (H)

*Weight: about 178g (battery excluded)

Accuracy index

Accuracy:±（%reading+digit）,one year warranty from the manufacture date

Conditions: surroundings temperature from 18℃ to 28℃，＜80%RH

Operation instruction

Regular operation

The "HOLD" function is on invalid mode if there is no input and the function

recovers when there has input. Long press can enter the NCV function.

Backlight and the torch function

The meter has backlight and illumination function for users' convenient reading of measuring results in the dark situations. To enter and exit this mode，please operate as below:

1. Short press "☀/🔦" key to turn on backlight and short press again to exit. It turns off automatically with no operation for 30S.
2. Long press "☀/🔦" to turn on the illumination function and the backlight at the same time. Short press the key again to turn off the illumination function. It turns off automatically with no operation for 30S.
3. When the backlight is on, press the key for 2S can start the illumination too. Both them will be turned off with no operation for 30S.

Auto power off

After about 10 minutes after power on, if there is no operating instrument, it will give audible voice prompts, will automatically cut off the power,

Turn on the power button again for use. Press the power button and the "⇥/Hz/℃/℉" together to cancel the auto power off.

Do not measure any voltage greater than 600V to prevent electric shock or damage to the instrument.

Do not apply more than600V voltage between the common and earth to prevent electric shock or damage to the instrument.

ACV/DCV/Resistance/Buzzer Measurement

1. Connect the black test pen to the COM jack and the red pen to the V/Ω jack.
2. Turn on the meter by pressing the power key.
3. Connect the test leads to the circuit to be tested, power or resistance. The meter will judge the ACV, DCV continuity or resistance automatically.
4. If the resistance of the circuit under test is not greater than about 50 ohms, the indicator light will turn on and the buzzer will sound continuously.
5. The screen also shows the polarity of the red test pen as well as the surrounding temperature when the DCV is in measurement.
6. When the ACV is in measurement, the screen can show the frequency of the ACV.

Diode measurement(change the range before measurement)

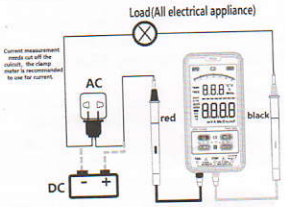
Press the button "⇥/Hz/℃/℉" and "⇥" the is shown, which means the meter enters the status of measuring the diode. Put the red test pen into V/Ω socket, the forward voltage drop of the meter will be shown directly on the LCD screen.

Capacitance measurement (change the range before measurement)
Press the button " ⊣/⊣ı/℃/℉" and "C" the is shown, which means the meter enters the status of measuring the capacitance. Put the red test pen into V/Ω socket,the capacitance reading will be shown directly on the LCD screen.

Note: * It needs a while when the big capacitance is measured.
*Make sure of the corresponding polarity when a capacitor with polarities is measured to avoid damaging the meter .

Temperature measurement (change the range before measurement)
The surrounding temperature is shown when the power id on , press " ⊣/⊣ı/℃/℉" three times, only temperature reading is shown on the screen(the below half part disappears).put the red test pen into V/Ω and the actual temperature of the probe is shown, press button " ⊣/⊣ı/℃/℉" again to change into 'F'

AC/DC current Measurement (identify the AC or DC automatically)
1. Connect the black test pen to the COM jack and the red pen to the 10A jack.
2. Turn on the meter by pressing the power key.
3. The test leads connected into the circuit and red the digits on the screen. Press the H/MCV button to hold the data.



NCV non contact voltage detection(---- refers strength extent)
1. Turn on the meter by pressing the power key.
2. Press the H/NCV constantly and test when ACV is shown on the screen.
3. The NCV indicator flashes with buzzer when there is voltage on the live wire. The screen shows how strong the magnetic and it shows from – to ---- according to the strength of the signal.

Note:
1. The voltage may still be there even if no flash with buzzer of NCV indicator, which can be affected by the sockets designs or insulation etc.
2. The outer factors such as flash lights or radar may cause NCV flashes