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Overview

This Operation Manual covers information on safety and cautions. Please read the relevant information carefully and observe all the **Warnings** and **Notes** strictly.

⚠Warning

To avoid electric shock or personal injury, read the "Safety Information" and "Rules for Safe Operation" carefully before using the Meter.

UT30A Multimeter is 3 3/4 digits with steady operations, fashionable structure and highly reliable hand-held measuring instrument. The meter can measure DC/AC Voltage, DC/AC Current, Resistance, Diode, Transistor hFE, Continuity,and etc.It is an ideal carry-on tool for users.

Unpacking Inspection

Open the packing case and take out the Meter. Check the following items carefully to see any missing or damaged part:

Item	Description	Qty
1	Operating Manual	1 piece
2	Test Lead	1 pair
3	Holster (Note: Purchase another protector)	1 piece

In the event you find any missing or damage, please contact your dealer immediately.

Safety Information

The UT30A complies with IEC61010-1: Pollution Degree 2;(CATI600V & CATII 300V voitage standard) with double insulation.Use the Meter only as specified in this msnual.otherwise ,the protection provided by the Meter may be impaired.

CAT I-F or local level. telecommunication.electronic with small transient ovltage.

CAT II-For local level .appliances, main wall outlets,portable equipment.

Rules For Safe Operation (1)

⚠ Warning

Read the manual carefully before use. Use the Meter only as specified in this manual, otherwise, the protection provided by the Meter may be impaired.

- Do not operate the Meter unless the bottom case has been closed as terminal can carry voltage.
- Inspect the insulation of the test leads and no damages to the test leads before using the Meter.
- As soon as the battery indicator's"⊟" appears, replace the battery to ensure accurate readings.
- Set the Meter to suitable function and range before each measurement.
- Tested values over the maximum range of each measurement can cause damages of the Meter or electric shock to users.
- Do not turn the rotary switch during measurement to avoid damages of the Meter.
- When measuring voltage higher than DC 60V or AC 30Vrms, pay extra attention

Rules For Safe Operation (2)

to avoid electric shock.

- Use only 0.5A/250V ϕ5X20(mm) fast acting fuse to replace the bad one.
- Do not operate or store the Meter under high temperature or humid condition, otherwise, the Meter will get worse.
- Do not change internal circuit to avoid damages to the meter and danger to the user.
- Periodically wipe the case with cloth and mild detergent. Do not use abrasives and solvents.
- Take out of the batteries from the case, if the meter will be not used for long time.

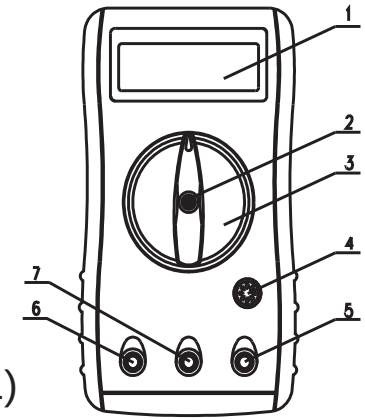
International Electrical Symbols

⎓	AC or DC
~	AC Current
⎓	DC Current
⏚	Grounding
⧈	Double Insulated.
⊟	Deficiency of Built-In Battery
⊣	Diode.
▭	Fuse.
⚠	Safety Rules
•))	Continuity Test
CE	Conforms to Standards of European Union.

The Meter structure

The Meter structure (figure 1)

1. Liquid Crystal Display
2. Data hold or POWER function Button
3. Rotary Switch
4. Transistor Test Jack
5. Common Input Jack
6. 10A Input Jack
7. VΩ mA Input Jack for General Measurement



(figure 1)

Make Measurements

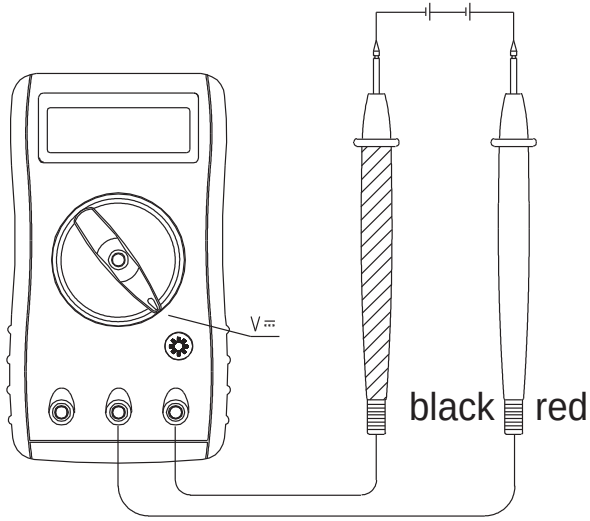
First, set rotary switch to proper position, sfter several seconds of self-check, the meter will enter measuring state. when  appear on LCD, replace a new battery to ensure accurate display. Second, ⚠symbol beside the input jack, warns you when testing current and voltage,input values must not exceed the limit.

Measurement Operation (1)

A. DC Voltage Measurement (figure 2)

⚠Warning

Never measure voltage value exceeding 500V, although it is possible to get the reading, which will cause damages to the internal circuit and hurt users;



(figure 2)

Measurement Operation (2)

1) Measuring value input from “VΩmA” (red test lead) and “COM” (black test lead.)
2) The Meter has auto-range function with initial range 400mV, at which, the meter may display irregular digits for open Circuit, and come to ZERO for short circuit, which are both normal.
3) For ranges except 400mV, input impedance 10MΩ , this can cause measuring tolerance at high impedance circuit ,If circuit impedance is equal or less than 10kΩ, you can ignore the tolerance (0.1% or lower).
4) The meter would clatter with flash of LCD reading if input exceeding 1000V, which warns you pay extra attention.

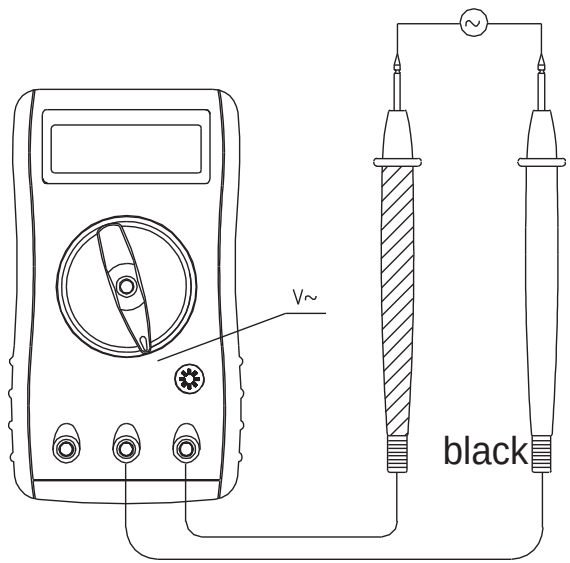
Measurement Operation (3)

B. AC Voltage Measurement: (figure 3)

⚠Warning

Same as DC voltage measurement, however,

The meter has auto-range function with initial range of 4V, and input exceeding 750V would make it clatter with LCD glittering, which warns you should pay extra attention.



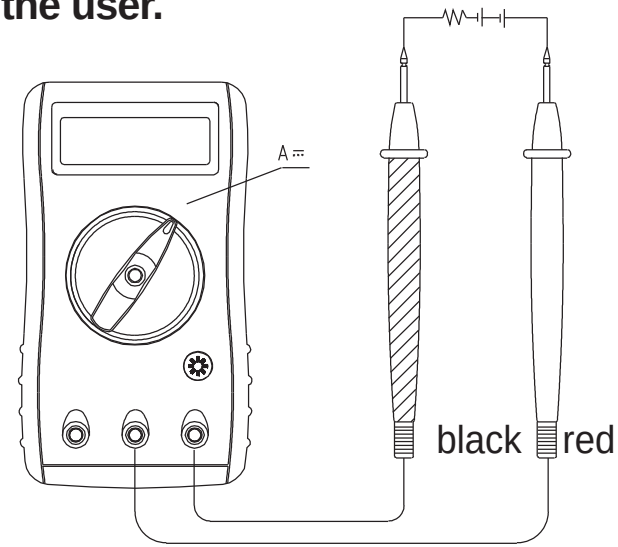
(figure 3)

Measurement Operation (4)

C. DC Current Measurement (figure 4)

⚠Warning

This range is manual range. Do not measure, when value between open voltage and earth exceeding safety voltage 60V, to avoid damages to the tested Meter or instrument, and hurt the user.



(figure 4)

Measurement Operation (5)

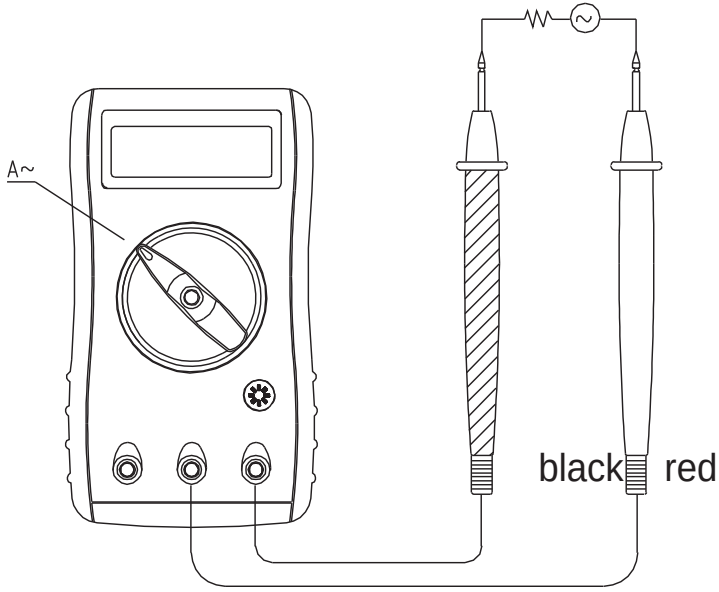
1) Before measurement, cut off the power of object to be measured and inspect whether input terminal or rotary switch is set to the proper range. Ensure it is proper, then you can measure the object with power on.
2) If the magnitude of current is unknown, you should set rotary switch to the higher range, then adjust to a lower range until a satisfactory reading is obtained.
3) Measuring value inputs from "VΩ mA" or "10A" jack (red test leads) and "COM" jack (black test leads).
4) For "VΩ mA" input jack, the Meter has a 0.5A/250V (ϕ5x20mm) fuse, overloaded,if overloaded, the fuse will be melt up, so replace with a new one with the same specification.
5) For 10A input jack, it is unfused; For your safety, every measuring time should equal to or less than 10 seconds, times interval should be equal to or over 15 minutes.
6) The meter would clatter with glitter of LCD reading if input exceeding 1000V, or overloaded which warns you pay extra attention.
7) The meter would clatter with glitter of LCD reading if overloaded, which warns you pay extra attention.

Measurement Operation (6)

D. AC Current Measurement (figure 5)

⚠Warning

Same as DC current measurement.



(figure 5)

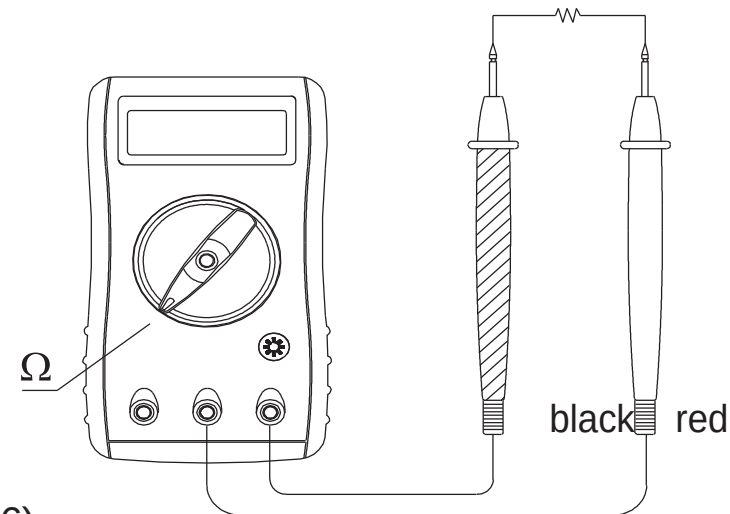
Measurement Operation (7)

E. Resistance Measurement (figure 6)

⚠Warning

To avoid damages to the Meter, when measuring resistance, cut off the power of the object and no charge in capacitor.

1) Measuring value inputs from "VΩmA" jack (red test leads) and "COM" jack (black test leads).
2) Wires takes 0.1Ω - 0.3Ω tolerance at function of 400Ω, when measuring resistance. To get an accurate reading, you can subtract the short circuit values of the 2 test leads.



(figure 6)

Measurement Operation (8)

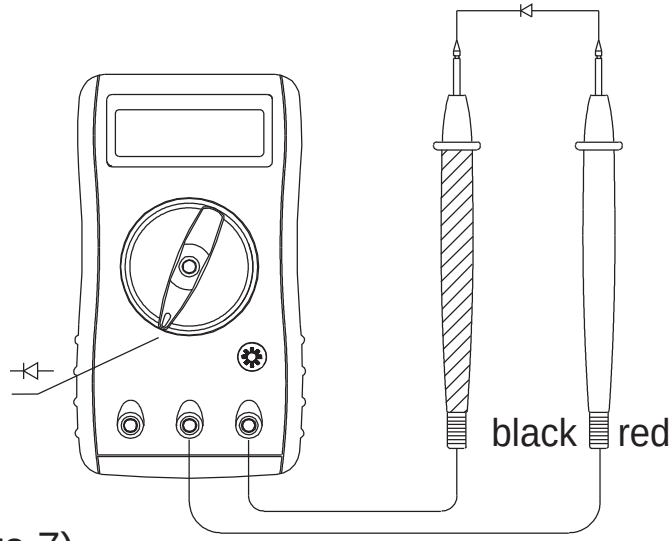
3) It will take several seconds for the display to become stabilize when resistance value is over 1MΩ, it is normal, because it is auto-range.

F. Diode measurement (figure 7)

⚠Warning

Cut off the power supply of the object to avoid damages to the Meter When measuring diode, no charge in capacitor.

1) Measuring value inputs from "VΩmA" jack (red test leads) and "COM" jack (black test leads).
2) When measuring voltage drop of PN, for a good silicon semiconductor structure, normal positive reading should stay between 0.5V~0.8V. Negative display being "OL" means

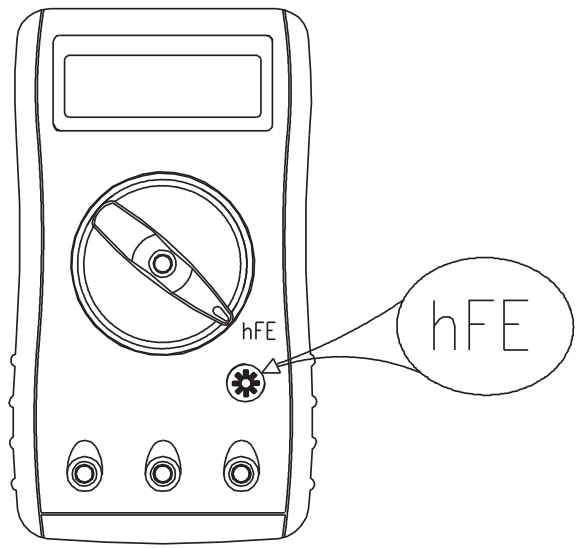


(figure 7)

open circuit; at this time, the red test lead is positive pole, and the black one is negative pole. In addition, “V” acts as unit of this range.

G. Transistor hFE Measurement (figure 8)

1) Check that the transistor is PNP or NPN type at first.
2) Connect the transistor to be measured to the corresponding jacks.
3) LCD displays hFE reference value.
4) Measuring condition: Ibo ≈10μA, Vce ≈ 3V



(figure 8)

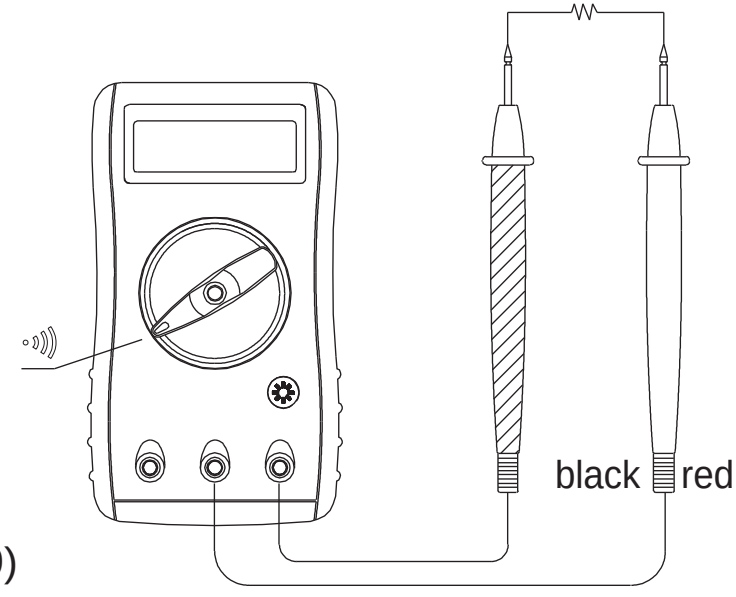
Measurement Operation (10)

H. Continuity test (figure9)

⚠Warning

Before testing continuity, power off and no charge in capacitor to avoid damages to the Meter.

Measuring value inputs from "VΩ mA" jack (red test lead) and "COM" jack (black test lead). If the impedance of measured circuits is equal or less than 80Ω, the Meter would clatter, it means the circuit is close. Display on LCD is circuit resistance. (80Ω is a dividing value for OPEN or CLOSE.)



(figure 9)

General Specifications (1)

The maximum voltage, between any terminal and earth, is 500Vrms.

- The “COM” input terminal is always connected with the black Test lead.
- The “V,Ω,mA” input terminal is always connected with the red test lead and is used to measure voltage up to 500V, resistance, and current up to 400mA.
- The “10A MAX” input terminal is always connected with the red test lead and is used to measure current greater than 400mA but no more than 10A.
- ⚠ 10A Terminal: Un-fused
- ⚠ mA Terminal Fuse : 0.5A 250V.ϕ 5x20(mm) fast acting fuse.
- Maximum display is 3999.
- Overloading display is “0L”.
- Operating Temperature :0°C-40°C(32°F -104°F)
- Storing Temperature :-10°C-50°C(14°F -122°F)
- Relative Humidity :0°C-31°C,≤80%;31°C-40°C ≤50%
- Altitude : operating:2000 meters,
  Storage :10000 meters.

General Specifications (2)

- Battery Type : 2pieces of 1.5V AAA
- Battery Deficiency : Display on LCD.
- Dimension : 75mmX130mmX36mm
- Weight : approx. 150g(including battery)

Accuracy Specifications (1)

Accuracy: ±(a% reading + b digits), which guarantee for one year.
Operating Temperature:23°C ±5°C
Relative Humidity: <75%
Temperature coefficient: 0.1x(specified accuracy)/1°C

A. DC Voltage

Range	Resolution	Accuracy
400mV	0.1mV	±(0.8%+3)
4V	1mV	±(0.8%+1)
40V	10mV	
400V	100mV	
500V	1V	±(1%+3)

Remark:

- Input Impedance: 400mV:4000MΩ .
  All other ranges:10MΩ .
- Overload protection: 230V(AC / DC current) for 400mV, others are protected 500V(AC or DC).

Accuracy Specifications (2)

B. AC Voltage

Range	Resolution	Accuracy
4V	1mV	±(1.2%+3)
40V	10mV	
400V	100mV	
500V	1V	

Remark:

- Input Impedance: ⩾ 10MΩ
- Frequency: 40-400Hz
- Display: RMS of Sine Wave Value (Average Value)
  Overload protection: 500V (AC or DC)

Accuracy Specifications (3)

C. DC Current

Range	Resolution	Accuracy
400μA	0.1μA	±(1%+2)
4mA	1μA	
40mA	10μA	
400mA	100μA	±(1.2%+2)
10A	10mA	±(1.5%+2)

Remark:

- Overload Protection: 0.5A/250v fuse. Un-fuse at 10A, measuring time limit is equal or less than 10 seconds, and time interval should be equal or over 15 minutes.
- Measuring voltage drop: Full range is 400m V.

Accuracy Specifications (4)

D. AC Current

Range	Resolution	Accuracy
400μA	0.1μA	±(1.3%+5)
4mA	1μA	
40mA	10μA	
400mA	100μA	±(2%+5)
10A	10mA	

Remark:

- Overload Protection: 0.5A/250V fuse; Un-fuse at 10A; measuring time limit is equal to or less than 10 seconds; time interval is equal or over 15 minutes.
- Voltage drop: 400mV for full range.
- Frequency response: 40Hz-400Hz
- Display: RMS of Sine Wave Value (Average Value)

Accuracy Specifications (5)

E. Resistance

Range	Resolution	Accuracy
400Ω	0.1Ω	±(1.2%+2)
4kΩ	1Ω	±(1%+2)
40kΩ	10Ω	
400kΩ	100Ω	
4MΩ	1KΩ	±(1.2%+2)
40MΩ	10KΩ	±(1.5%+2)

Remark:

l Overload Protection: All ranges are 230V (DC/ AC current).

Accuracy Specifications (6)

F. Diode, Transistor, Continuity Test

Function	Range	Resolution	Input Protection	Remark
Diode		1mV	230V DC or AC	3V when open circuit
Transistor	hFE	1β		Ibo≈10μA Vce≈3V
Continuity Beeper Test		0.1Ω	230V DC or AC	The buzzer beeps when the value is less than 80Ω

Remark:

l Overload Protection: 230V (DC/ AC current)

Maintenance (1)

A. “Hold”, “Power” Button Function

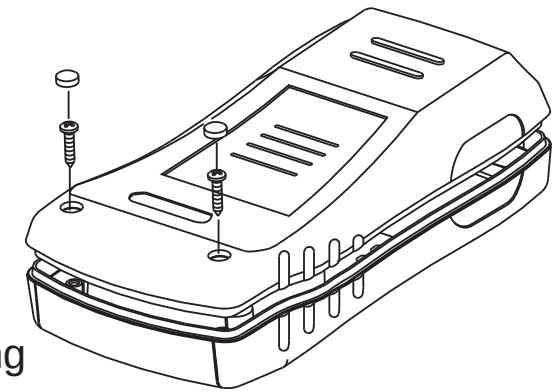
1) Pressing “Hold” button holds current reding displayed on LCD in open state,press it again to release the current reading displayed on LCD .
2) At power on state,press Hold to enter and exit the touch hold mode
3) At hold mode,it can capture the present reading and display on the LCD, otherwise,the reading is a random value.
4) The Meter has Auto-power-off function,which switches the Meter off if it is not used for more than 30 minutes. At this time,press the button will restart the power.

⚠ **Hold and power Button are the same one.**

Maintenance (2)

B. Fuse and Battery replacement (figure 10)

1. Remove inputs & test leads from terminals.
2. Remove two rubber feet and two screws from the bottom case.
3. Separate the case bottom from the case top.
4. Replace the battery or fuse as per the following specification:
   Battery: 1.5V(AAA) NEDA 1604 or 6F22 or 006P Fuse:
   a) mA Terminal: ϕ5x20mm, 0.5A, 250V, fast acting
   b) 10A Terminal: Unfused
5. Rejoin the case bottom and case top, and reinstall two screws and two rubber feet.



(figure 10)

~ END ~

* The manual is subject to changes without separate notice. *

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