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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.











B. Safety Rules(1)

1. 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.
2. Do not operate the Meter unless the bottom case has been closed as terminal can carry voltage.
3. Inspect the insulation of the test leads and no damages to the test leads before using the Meter.
4. As soon as the battery indicator's "⊕" appears, replace the battery to ensure accurate readings.
5. Set the Meter to suitable function and range before each measurement.
6. Tested values over the maximum range of each measurement can cause damages of the Meter or electric shock to users.
7. Do not turn the rotary switch during measurement to avoid damages of the Meter.

B. Safety Rules(2)

8. When measuring voltage higher than DC 60V or AC 30Vrms, pay extra attention to avoid electric shock.
9. Use only 0.5A/250V ϕ 5X20(mm) fast acting ceramic fuse to replace the bad one.
10. Do not operate or store the Meter under high temperature or humid condition, otherwise, the Meter will get worse.
11. Do not change internal circuit to avoid damages to the meter and danger to the user.
12. Periodically wipe the case with cloth and mild detergent. Do not use abrasives and solvents.

C. International Electrical Symbols


	AC or DC
	AC (Alternating Current)
	DC (Direct Current)
	Grounding
	Double Insulated
	Deficiency of Built-In Battery
	Diode
	Fuse
	Continuity Test
	Safety Rules

CAUTION-FOR CONTINUED PROTECTION AGAINST FIRE, REPLACE ONLY WITH FUSE OF THE SPECIFIED VOLTAGE AND CURRENT RATINGS.

D. Feature(1)

1. The maximum voltage, between any terminal and earth, is 600Vrms.
 - A) The “COM” input terminal is always connected with the black Test lead.
 - B) 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.
 - C) 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.
2. ⚠ 10A Terminal: Un-fused
3. ⚠ mA Terminal Fuse: 0.5A/250V ϕ 5X20(mm) fast acting ceramic fuse
4. Maximum display is 3999.
5. Overloading display is “OL”.
6. Operating Temperature:0°C-40°C(32°F -104°F)

D. Feature(2)

7. Storing Temperature: -10°C - 50°C (14°F - 122°F)
8. Relative Humidity: 0°C - 31°C, ≤80%; 31°C - 40°C, ≤50%
9. Altitude: Operating: 2000 meters
Storage: 10000 meters
10. Battery Type: 2 pieces of 1.5V AAA.
11. Battery Deficiency: display “”.
12. Dimension: 75mmX130mmX36mm
13. Weight: approx. 150g (including battery)

E. Specification(1)

Accuracy: $\pm(a\% \text{ reading} + b \text{ digits})$, guarantee for one year.

Operating Temperature: $23^{\circ}\text{C} \pm 5^{\circ}\text{C}$

Relative Humidity: $<75\%$.

Temperature coefficient: $0.1 \times (\text{specified accuracy}) / 1^{\circ}\text{C}$

1. DC Voltage

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

⚠ Input Impedance:

400mV: $4000\text{M}\Omega$, All other ranges: $10\text{M}\Omega$.

Overload protection: 230V (AC/DC current) for 400mV, others are protected 500V (AC or DC).

2. AC Voltage

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

⚠ Input Impedance: $\geq 10M\Omega$


Frequency: 40-400Hz

Display: RMS of Sine Wave Value (Average Value)

Overload protection: 500V (AC or DC)

E. Specification(3)**3. DC Current**


Range	Resolution	Accuracy
400 μ A	0.1 μ A	$\pm(1\%+2)$
4mA	1 μ A	
40mA	10 μ A	
400mA	100 μ A	$\pm(1.2\%+2)$
10A	10mA	$\pm(1.5\%+2)$

 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.

E. Specification(4)**4. AC Current**

Range	Resolution	Accuracy
400 μ A	0.1 μ A	$\pm(1.3\%+5)$
4mA	1 μ A	
40mA	10 μ A	
400mA	100 μ A	$\pm(2\%+5)$
10A	10mA	

 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)

5. Resistance

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

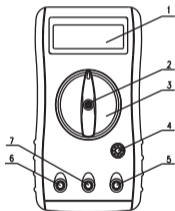
⚠ Overload Protection: All ranges are 230V (DC/ AC current).

E. Specification(6)**6. Diode, Transistor, Continuity Test**

Function	Range	Resolution	Input Protection	Remark
Diode		1mV	230V DC or AC	3V when open circuit
Transistor	hFE	1 β		$I_{bo} \approx 10\mu A$ $V_{ce} \approx 3V$
Continuity Test		0.1 Ω	230V DC or AC	The buzzer beeps when the value is less than 80 Ω


 Overload Protection: 230V (DC/ AC current)


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. V Ω mA Input Jack for General Measurement



(figure 1)

G. Make Measurements(1)

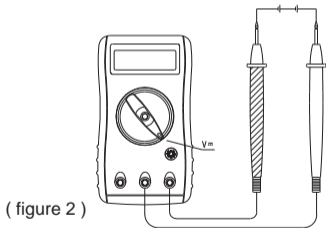
First, set rotary switch to proper position, after several seconds of self-check, the meter will enter measuring state. When “” appear on LCD, replace a new battery to ensure accurate display.

Second,  symbol beside the input jack, warns you when testing current and voltage, input values must not exceed the limit.

G. Make Measurements(2)

1. DC Voltage Measurement (figure 2)

- 1) 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;
- 2) Measuring value input from "V Ω mA" (red test lead) and "COM" (black test lead.)
- 3) 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.

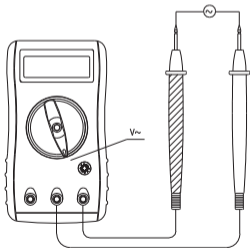


G. Make Measurements(3)

- 4) For ranges except 400mV, input impedance $10M\Omega$, this can cause measuring tolerance at high impedance circuit ,If circuit impedance is equal or less than $10k\Omega$, you can ignore the tolerance (0.1% or lower).
- 5) The meter would clatter with flash of LCD reading if input exceeding 1000V, which warns you should pay extra attention.

G. Make Measurements(4)**2. AC Voltage Measurement** (figure 3)

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.

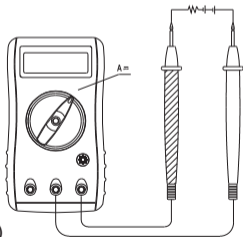


(figure 3)

G. Make Measurements(5)

3. DC Current Measurement (figure 4)

- 1) This range is manual range. Do not measure, when value between open voltage and earth exceeding safety voltage 60V, to avoid damages to the Meter or to the instruments under test, and hurt the user.
- 2) 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, and then you can measure the object with power on.



(figure 4)

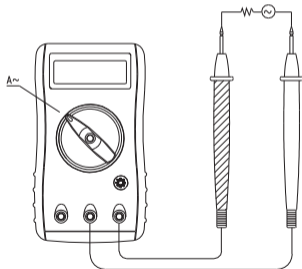
G. Make Measurements(6)

- 3) 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.
- 4) Measuring value inputs from “V Ω mA” or “10A” jack (red test leads) and “COM” jack (black test leads).
- 5) For “V Ω mA” input jack, the Meter has 0.5A/250V (ϕ 5x20mm) ceramic fuse overload protection, if overloaded, the fuse will burn up, so replace with a new one with the same specification.
- 6) 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.
- 7) The meter would clatter with glitter of LCD reading if input exceeding 1000V or overloaded, which warns you pay extra attention.

G. Make Measurements(7)

4. AC Current Measurement (figure 5)

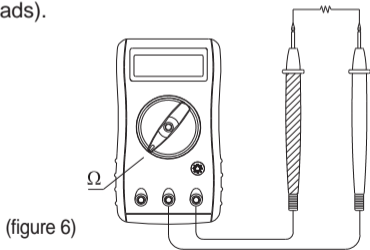
Same as DC current measurement.



(figure 5)

G. Make Measurements(8)**5. Resistance Measurement** (figure 6)

- 1) To avoid damages to the Meter, when measuring resistance, cut off the power of the object and no charge in capacitor.
- 2) Measuring value inputs from "V Ω mA" jack (red test leads) and "COM" jack (black test leads).



(figure 6)

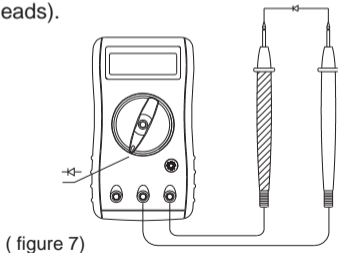
G. Make Measurements(9)

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

G. Make Measurements(7)

6. Diode measurement (figure 7)

- 1) Cut off the power supply of the object to avoid damages to the Meter when measuring diode, no charge in capacitor.
- 2) Measuring value inputs from "V Ω mA" jack (red test leads) and "COM" jack (black test leads).



G. Make Measurements(8)

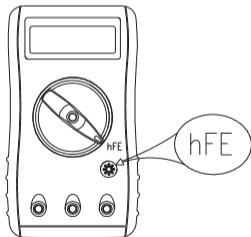
- 3) When measuring voltage drop of PN, for a good silicon semiconductor structure, normal positive reading should stay between 0.5V~0.8V. Negative display being “OL” means open circuit; at this time, the red test lead is positive pole, and the black one is negative pole. In addition, “V” acts as unit of this range.

G. Make Measurements(9)

7. Transistor hFE Measurement (figure 8)

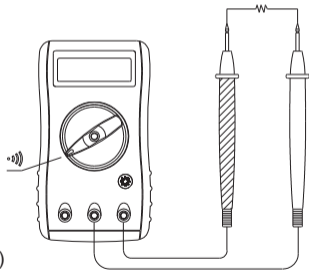
- 1) Check that the transistor is PNP or NPN type at first.
- 2) Connect the transistor to be measured to the corresponding jacks.
- 3) LCD displays hFE reference value.
- 4) Measuring condition: $I_b \approx 10\mu A$, $V_{ce} \approx 3V$

(figure 8)



G. Make Measurements(10)**8. Continuity test** (figure 9)

⚠ 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)

G. Make Measurements(11)

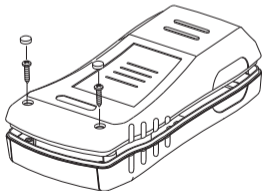
9. “Hold”, “Power” Button Function

- 1) Pressing “Hold” button holds current reading 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.

H. Fuse and Battery replacement

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 with the identical type and specification as stated on this operating manual.
5. Rejoin the case bottom and case top, and reinstall two screws and two rubber feet.



(figure 10)

I. Included Accessories

1. Operating Manual
2. Test Leads
3. 2 pieces of 1.5V (AAA) Battery

~ END ~

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