

Thank you for choosing this digital multimeter!

Caution:

*Please read this instruction manual carefully before use, in order to have a proper operation .*

- ⊕ Do not apply an input which exceeds the maximum & the measurement range.
- ⊕ Change the battery when 'E3' display to ensure the accurate measurement.
- ⊕ Use the same specification (200mA/250V ) fuse when necessary.
- ⊕ When change the battery, fuse or open the cabinet , test leads must be away from circuit and turn the switch in 'power off ' position.
- ⊕ Do not put the multimeter in high relative humidity, extreme temperature or erratic place .
- ⊕ To ensure a good performance, it should rotate the switch back and forth several times when the multimeter does not use for a period of time .
- ⊕ Do not use the volatile or corrosive cleaner to clean the multimeter, please use the soft cotton and mild detergent.

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⚡ **WARNING** ⚠

Be sure to follow the WARNINGS in this manual . Erroneous use may put human bodies in danger.

The following legend applied to this manual:

- ⚡ Dangerous voltage (Take care not to get an electric shock in voltage measurement .)
- ≡ Ground (Allowable applied voltage range between the input terminal and earth.)
- ⚠ Refer to instruction manual(Very important description for safe use.)
- ≡ Direct current (DC).
- ~ Alternating current (AC).
- ⊞ Replace fuses with amp/Volt ratings shown.

🔍 **Brief description**

- \* This multimeter has the outstanding cosmetic design to protect the LCD display effectively. The build-in test lead provide a safety and convenience purposes.
- \* Simply press the one touch open button can open the cover automatically.

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- \* Simply closing the Lid, the unit can be turned off automatically which can help you to save the battery power.

🔍 **Standard feature**

- \* Using 3 1/2digit LCD display, maximum display 1999,11mm height.
- \* It use 200mA/250v fuse to protect voltage and current measurement. It has 230v DC and AC overvoltage protection in resistance measurement.
- \* Automatic polarity change.
- \* It display '1' in over measuring range.
- \* 60Hz 4.0V<sub>P-P</sub> square wave generator is available.
- \* Continuity and diode checking capability.
- \* Temperature measurement capability.
- \* Low battery indication capability.
- \* 9V battery operation.
- \* Outside dimension:139×75×26mm
- \* Weight :around 200g(include battery and test lead).

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🔍 **Front panel layout:**

🔍 **Technical specification and operating procedure**

Environment temperature:  $23 \pm 5^{\circ}\text{C}$   
 Relative humidity: <75%  
 Accuracy:  $\pm (\frac{a}{n})\%$   
**1. DC Voltage** reading + n digit)

RANGE	RESOLUTION	ACCURACY
2000mV	1mV	± (0.8% of rdg+1 digit)
20V	10mV	
200V	100mV	
450V	1V	

Input resistance: 1MΩ

Maximum input: 450V DC

Operating procedure:

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- A. Function switch select to  $\bar{V}$  position.
- B. Select the correct range in measurement, if the range is not ensure, switch it to the maximum range.
- C. Apply the test lead to the test point.
- D. Check the reading from display.

### 2.AC Voltage

RANGE	RESOLUTION	ACCURACY
200V	100mV	$\pm(1.5\% \text{ of rdg} + 10 \text{ digits})$
450V	1V	

Frequency response: 45-400Hz

Maximum input : 450V AC

Display: SIN wave

Operating procedure:

- A. Function switch select to  $\bar{V}$  position
- B. Select the correct range in measurement, if the range is not ensure, please switch it to the maximum range.
- C. Apply the test lead to the test point.
- D. Check the reading from display.

### 3. DC current

RANGE	RESOLUTION	ACCURACY
200mA	100 $\mu$ A	$\pm(2\% \text{ of rdg} + 2 \text{ digits})$

Using 200mA /250v fuse for overvoltage protection.

Operating procedure:

- A. Function switch select to  $\bar{A}$  position .
- B. Select the range selector in 200mA range.

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- C. Apply the test lead to the test point.
- D. Check the reading from display.

### 4. Resistance $\Omega$

RANGE	RESOLUTION	ACCURACY
2000 $\Omega$	1 $\Omega$	$\pm(1\% \text{ of rdg} + 3 \text{ digits})$
20K $\Omega$	10 $\Omega$	
200K $\Omega$	100 $\Omega$	
2000K $\Omega$	1K $\Omega$	

Open circuit voltage :2.8V

Overvoltage protection: 230v DC or AC in less than 10 seconds.

Operating procedure

- A. Function switch select to  $\Omega$  position.
- B. Select the correct range in measurement, if the range is not ensure, please switch it to the maximum range.
- C. Apply the test lead to the test point.
- D. Check the reading from display.

### 5.Temperature

RANGE	RESOLUTION	ACCURACY
-40 $^{\circ}$ C ~ +1000 $^{\circ}$ C	1 $^{\circ}$ C	<150 $^{\circ}$ C $\pm(3\% \text{ of rdg} + 4 \text{ digits})$ >150 $^{\circ}$ C $\pm(3\% \text{ of rdg} + 10 \text{ digits})$

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Operating procedure:

- A. Function switch select to  $^{\circ}$  C position.
- B. Select the range selector to  $^{\circ}$  C position .
- C. Plug in the thermal couple in the multimeter and apply the thermal couple to the test surface and place.
- D. Check the reading from display.

### 6. Diode

Test current around 1mA and display the forward voltage drop.

Operating Procedure

- A. Function switch select to  $\Omega$  position.
- B. Select the range selector to 2000  $\Omega$  range.
- C. Apply the test lead to the diode , red lead to positive and black to negative.
- D. Check the reading from display.

### 7. Transistor hFE

Vce around 2.8V I<sub>b</sub> around 10  $\mu$ A display hFE value.

Operating procedure

- A. Function switch select to hFE position.
- B. Select the range selector to hFE position.
- C. Place the transistor to the hFE testing slot.
- D. Check the reading from display.

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### 8. Buzzer(continuity test)

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If less than 40  $\Omega$  , out put beep sound will be on.

Operating procedure

- A. Function switch select to  $\Omega$  position.
- B. Select the range selector in 2000  $\Omega$  range.
- C. Apply the test lead to the test point, there is a beep sound output in less than 40  $\Omega$  .

### 9. Square wave generation

Square wave frequency 60Hz and amplitude around 4.0 Vp-p.

Operating procedure

- A. Function switch select to  $\square$  position.
- B. Select the range selector in  $\square$  range.
- C. Signal will output from the test lead.

FUNCTION TABLE

Function \ Model	UT21	UT22	UT23
$\overline{V}$ DC voltage	Y	Y	Y
$\tilde{V}$ AC voltage	Y	Y	Y
$\overline{A}$ DC current	Y	Y	Y
$\Omega$ Resistance	Y	Y	Y
$\rightarrow$ Diode	Y	Y	Y
hFE Transistor	Y	Y	N
$\bullet \parallel$ Buzzer	N	Y	Y
$^{\circ}C$ Temperature	N	N	Y
$\square$ Square wave generation	N	Y	N

\*\*Technical

specification is subjected to change without further notice.\*\*