

MINI DIGITAL CLAMP-ON MULTIMETER

Operating instruction



OPERATION MANUAL

1. SAFETY INFORMATION


This digital clamp multimeter has been designed according to IEC61010 oncoming electronic measuring instruments with an over voltage category (CAT II 600V) and Pollution degree 2.



WARNING

To avoid possible electric shock or personal injury, follow these guidelines:

- a. Do not use the meter if it is damaged. Before you use the meter, inspect the case. Pay particular attention to the insulation surrounding the connectors.
- b. Inspect the test leads for damaged insulation or exposed metal. Check the test leads for continuity. Replace damaged test leads before you use the meter.
- c. Do not use the meter if it operates abnormally. Protection may be impaired. When in doubt, have the meter serviced.
- d. Do not operate the meter around explosive gas, vapor, or dust.
- e. Do not apply more than the rated voltage, as marked on the meter, between terminals or between any terminal and earth ground.
- f. Before use, verify the meter's operation by measuring a known voltage.
- g. When measuring current, turn off circuit power before connecting the meter in the circuit.
- h. When servicing the meter, use only specified replacement parts. Use with caution when working above 30V ac rms, 42V peak, or 60 dc. Such voltages pose a shock hazard.
- j. When using the probes, keep your fingers behind the finger guards on the probes.
- k. Connect the common test lead before you connect the live test lead. When you disconnect test leads, disconnect the live test lead first.
- l. Remove the test leads from the meter before you open the battery door.
- m. Do not operate the meter with the battery door or portions of the cover removed or loosened.
- n. To avoid false readings, which could lead to possible electric shock

or personal injury, replace the batteries as soon as the low battery indicator (" ") appears.

- o. CAT II - Measurement Category | I is for measurements performed on circuits directly connected to low voltage installation. (Examples are measurements on household appliances, portable tools and similar equipments.) Do not use the meter for measurements within Measurement Categories II or IV.




2. INTRODUCTION

This manual provides all safety information, operation instruction, specifications and maintenance for the meter, which is compact, handheld, and battery operated.


This instrument performs AC/DC voltage, AC/DC Current, Resistance, Audible Continuity, Diode, Temperature measurements and Non-Contact ACV Detect (NCV) as well as Capacitance, Hz etc. It is an auto ranging DMM with AC/DC current clamp meter function.

3. CAUTION

To avoid damage to the meter, don't apply input which exceeds the limit shown below:

Function	Input Limits
DCV/ACV	600V DC or 600V rms AC
Ω   	110V DC or rms AC

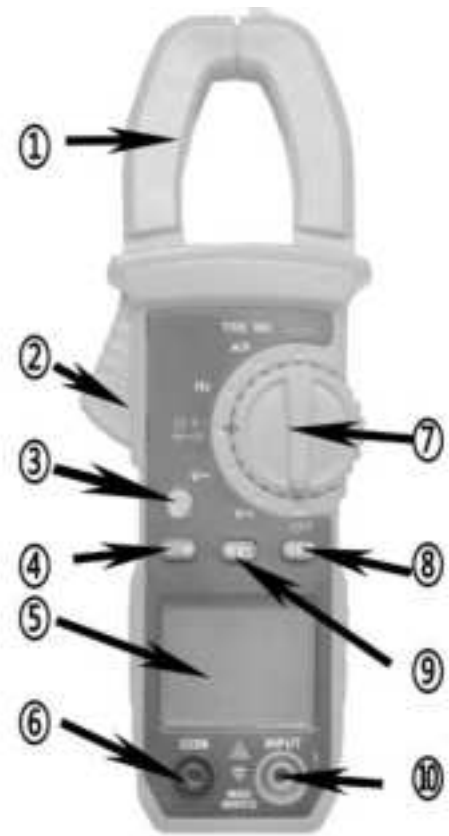
4. GENERAL CHARACTERISTICS

Display	4000 digit count, 2 second update.
Polarity Indication	"-" displayed automatically
Over-range Indication	"OL" displayed
Low Battery Indication	"  " displayed
Operation Temperature	0°C to 40°C, less than 75%RH
Storage Temperature	-10°C to 50°C, less than 80%RH
Battery Type	(AAA size) 1.5Vx2PCS

Dimension(HxWxD)	183x65x32mm with Jaw Open ϕ 21mm
Weight	Approx 133g
Accessories	Operator's Manual, Battery, Test LeadsK-Type

5. PANEL DESCRIPTION

- 1) tong head
- 2) Clamp head trigger
- 3) NCV indicator light
- 4) Numeric lock and light button
- 5) Liquid Crystal Display
- 6) COM Input Terminal
- 7) Test function switch
- 8) Function selection button
- 9) Capacitor zeroing button
- 10) $V, \Omega, \text{⎓}$ Input Terminal



6. SPECIFICATIONS

Accuracy is guarantied for 1 year $23^{\circ}\text{C} \pm 5^{\circ}\text{C}$ less than 75%RH

6-1. AC VOLTAGE

Range	Resolution	Accuracy
4V	0.001V	$\pm(1.3\% + 5d)$
40V	0.01V	$\pm(1.3\% + 5d)$
400V	0.1V	$\pm(1.5\% + 10d)$
600V	1V	$\pm(2.0\% + 10d)$

Input Impedance: more than $10\text{M}\Omega$; Frequency Range: 40 to 400Hz.

6-2. DC VOLTAGE

Range	Resolution	Accuracy
4V	0.001V	$\pm(1.0\% + 5d)$
40V	0.01V	
400V	0.1V	$\pm(1.0\% + 10d)$
600V	1V	$\pm(1.2\% + 10d)$

Input Impedance: more than 10M Ω

6-3. RESISTANCE

Range	Resolution	Accuracy
400 Ω	0.1 Ω	$\pm(1.5\% + 10d)$
4K Ω	1 Ω	$\pm(1.0\% + 5d)$
40K Ω	10 Ω	$\pm(1.0\% + 5d)$
400k Ω	100 Ω	$\pm(1.0\% + 5d)$
4M Ω	1k Ω	$\pm(1.0\% + 5d)$
40M Ω	10k Ω	$\pm(1.5\% + 10d)$

6-4. AC/DC CURRENT

Range	Resolution	Accuracy
40A	0.01A	$\pm(2.5\% + 20d)$
400A	0.1A	$\pm(2.5\% + 10d)$
600A	1A	$\pm(2.5\% + 20d)$

Measuring voltage drop: 200mV; Frequency Range: 40 to 400Hz.

6-5. CAPACITANCE

Range	Resolution	Accuracy
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4nF	1pF	$\pm(3.5\% +8d)$
40nF	10pF	$\pm(3.5\% +8d)$
400nF	100pF	$\pm(3.5\% +8d)$
4uF	1nF	$\pm(3.5\% +8d)$
40uF	10nF	$\pm(3.8\% +8d)$
400uF	100nF	$\pm(3.8\% +10d)$
4mF	1uF	$\pm(4.0\% +15d)$

6-6. FREQUENCY

Range	Resolution	Accuracy
400Hz	0.1Hz	$\pm(1.5\% +10d)$
4kHz	1Hz	$\pm(1.5\% +10d)$
40kHz	10Hz	$\pm(1.5\% +10d)$
400kHz	100Hz	$\pm(2.0\% +10d)$
4MHz	1kHz	$\pm(3.0\% +10d)$

7. CONTROL BUTTON DESCRIPTION

7-1. Numeric lock and light button (HOLD/*)

1. When you press this button briefly, LCD will show the last reading, and “H” symbol will appear till pushed again. Data holding will be cancelled automatically when the function switch is rotated.
2. When you hold this button down for about 2 seconds. Turn on the headlight and press this button again for 2 seconds to turn it off.

7-2 Capacitor zeroing buttonn (REL)

7-3 Function selection button (SELECT)

This button is used to switch between DC voltage, AC voltage,

resistor, diode, capacitance, ACA,DCA.

8. OPERATION INSTRUCTION

8-1. AC/DC VOLATAGE MEASUREMENT

- 1) Connect the BLACK test lead to the **COM** jack and the RED to the **INPUT** jack.
- 2) Switch the knob to DCV or ACV
- 3) Connect the test pen to the point to be measured
- 4) Read LCD display. The polarity of RED test lead will be indicated when m aking a DC measurement.

8-2. RESISTANCE MEASUREMENT

- 1)Connect the BLACK test lead to the **COM** jack and the RED to the **INPUT** jack.
- 2) Switch the knob to Resistance.
- 3) Connect test leads across the resistance under measurement,and then get the test readings on LCD.

NOTE:

- 1) For resistance above 2 M Ω or 4M Ω , the meter may take a few seconds to stabilize reading. This is normal for high resistance measuring.
- 2) When the input is not connected, i.e. at open circuit, the figure “OL” will be displayed under over- range condition.
- 3) When check in circuit resistance, be sure the circuit under test, has all power removed and all capacitors are fully discharged.


8-3. DIODE TEST

- 1) Switch the knob to Resistance and Press the SELECT key to SELECT the diode measurement mode.
- 2) Connect the BLACK test lead to the **COM** jack and the RED to the **INPUT** jack.
- 3) connect the RED and BLACK test leads to anode and cathodes of the diode under test separately.
- 4) The conduction voltage of the diode is displayed on the screen.

8-4. CONTINUITY TEST

- 1) Switch the knob to Resistance and Press the SELECT key to SELECT the continuity measurement mode.
- 2) Connect the BLACK test lead to the **COM** jack and the RED to the **INPUT** jack.
- 3) The key red and black test pens are connected to two points of the circuit to be tested. If the resistance between the two points is less than 50 OHms, the continuous buzzer will issue an alarm.
- 4) The measurements are displayed on the screen.

8-5. DC/AC CURRENT MEASUREMENT

- 1) Switch the knob to  and Press the SELECT key to SELECT the DC or AC current measurement mode.
- 2) Press the trigger of the tongs, open the tongs, pass the charged single wire through the jaws, and release the trigger to close the jaws. Move the tongs so that the wire is in the center of the tongs.
- 3) Display reading is showing the conductor current.

8-6. CAPACITANCE MEASUREMENT

- 1) Connect the BLACK test lead to the **COM** jack and the RED to the **INPUT** jack.
- 2) Switch the knob to Resistance and Press the SELECT key to SELECT the capacitance measurement mode.
- 3) connect the RED and BLACK test leads to anode and cathodes of the capacitance under test separately.
- 4) Take the reading from LCD. When test the large capacitor, it's normal to take more time for getting the values on LCD.

NOTE: Make sure of discharging all the capacitor's electricity completely before measurements.

8-7. Non-Contact AC VOLTAGE Detection (NCV)

- 1) witch the knob to **NCV** measurement mode..
- 2) Take the clamp jaw close to the AC signal.
- 3) Then the NCV indicating LED is constantly fash and the Beeper sounding at the same time.once ACV> 100V.

NOTE: Don't try to contact the testing place with this tester. No display on LCD at this range.


8-8. Frequency measurement (HZ)

- 1)witch the knob to frequency measurement mode.
- 2) Connect the BLACK test lead to the **COM** jack and the RED to the **INPUT** jack.
- 3) Connect the test pen to the point to be measured.
- 4) The measurements are displayed on the screen.

8-9. Automatic shutdown machine

This machine automatically shuts down 15 minutes after starting up.

9. BATTERY REPLACEMENT

If the sign“ " appears on the display, it indicates battery should be replaced. Remove screws and open the back case, replace the exhausted batteries with new ones (AAA 1.5V *2pc or equivalent).