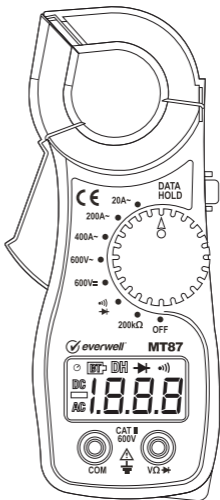




MT87

Digital Clamp Meter

OPERATOR'S INSTRUCTION MANUAL



WARNING

**READ AND UNDERSTAND THIS MANUAL
BEFORE USING THE INSTRUMENT.**

1. INTRODUCTION

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

This series instrument performs AC/DC voltage, AC current, resistance, audible continuity, diode measurements. It is a 3 1/2 digits, 2000 counts digital clamp multimeter.


It has the functions of polarity indication, data hold, maximum value hold, over range indication and automatic power-off. It can be operated easily and is an ideal instrument tool.

The MT87 series digital clamp multimeter has been designed according to EN61010-1 Standard of 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, and to avoid possible damage to the meter or to the equipment under test, adhere to the following rules:

- Before using the meter inspect the case. Do not use the meter if it is damaged or the case (or part of the case) is removed. Inspect for cracks or missing plastic pieces. Pay attention to the insulation around the connectors.
- Inspect the test leads for damaged insulation or exposed metal. Check the test leads for continuity.
- Do not apply more than the rated voltage, as marked on the meter, between the terminals or between any terminal and grounding.
- The rotary switch should be placed in the right position and no any changeover of range shall be made during measurement is conducted to prevent damage of the meter.












- When the meter is working at an effective voltage over 60V in DC or 36V rms in AC, special care should be taken for there is danger of electric shock.
- Use the proper terminals, function, and range for your measurements.
- Do not use or store the meter in an environment of high temperature, humidity, explosive, inflammable and strong magnetic field. The performance of the meter may deteriorate after dampened.
- When using the test leads, keep your fingers behind the finger guards.
- Disconnect circuit power and discharge all high-voltage capacitors before testing resistance, continuity or diodes.
- Replace the battery as soon as the battery indicator  appears. With a low battery, the meter might produce false readings that can lead to electric shock and personal injury.
- Remove the connection between the testing leads and the circuit being tested, and turn the meter power off before opening the Meter case.
- When servicing the meter, use only the same model number or identical electrical specifications replacement parts.
- The internal circuit of the meter shall not be altered at will to avoid damage of the meter and any accident.
- Soft cloth and mild detergent should be used to clean the surface of the meter when servicing. No abrasive and solvent should be used to prevent the surface of the meter from corrosion, damage and accident.
- The meter is suitable for indoor use.
- Turn the meter power off when it is not in use and take out the battery when not using for a long time. Constantly check the battery as it may leak when it has been using for some time, replace the battery as soon as leaking appears.

A leaking battery will damage the Meter.

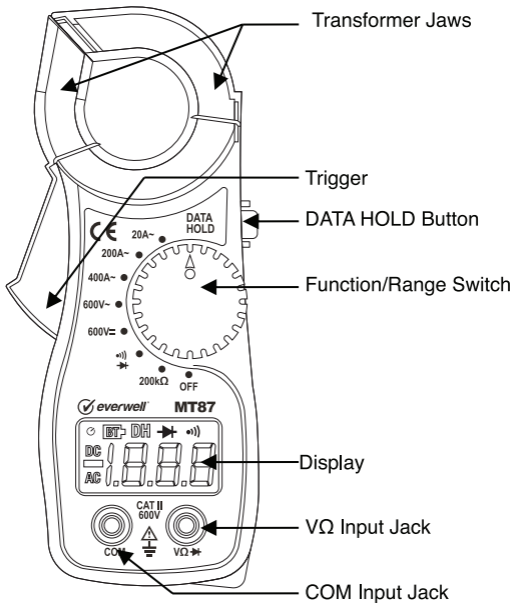
2. GENERAL CHARACTERISTICS

Display	LCD, 2000 counts updates 2/sec
LCD Size	41x21.5mm (1.6x0.8in)
Polarity Indication	"-" displayed automatically
Over-Range Indication	"OL" displayed
Low Battery Indication	"  " displayed
Operation Temperature	0°C to 40°C (32°F to 104°F), less than 80%RH
Storage Temperature	-10°C to 50°C (14°F to 122°F), less than 85%RH
Battery Type	2 x AAA
Dimension(HxWxD)	150x63x28mm (5.9x2.5x1.1in)
Weight Approx	145g (5.1 oz) include battery

3. ELECTRICAL SYMBOLS

	DC (Direct Current).
	AC (Alternating Current)
	DC or AC
	Important safety information
	Refer to the manual
	Dangerous voltage maybe present
	Earth ground
	Low battery
	Diode
	Continuity test
	Conforms to European Union directive
	Double insulated

4. PANEL DESCRIPTION



5. SPECIFICATIONS

Accuracy is guaranteed for 1 year $23\pm 5^{\circ}\text{C}$ ($73.4\pm 41^{\circ}\text{F}$) less than 80%RH

5-1. DC VOLTAGE

Range	Resolution	Accuracy
600V	1V	$\pm(1.0\% \text{ of rdg} + 5\text{dgts})$

Input Impedance: $10\text{M}\Omega$

Overload Protection: 600V DC/AC rms

Max. Input Voltage: 600V DC

5-2. AC CURRENT

Range	Resolution	Accuracy
20A	1mA	$\pm(2.5\% \text{ of rdg} + 10\text{dgts})$
200A	10mA	
400A	1A	

Measuring Voltage Drop: 200mV

Frequency Range: 50/60Hz

5-3. AC VOLTAGE

Range	Resolution	Accuracy
600V	1V	$\pm(1.2\% \text{ of rdg} + 8\text{dgts})$

Input Impedance: $10\text{M}\Omega$

Frequency Range: 50Hz/60Hz

Overload Protection: 600V DC/AC rms

Response: Average, calibrated in rms of sine wave

Max. Input Voltage: 600V AC rms


5-4. RESISTANCE

Range	Resolution	Accuracy
200K Ω	100 Ω	$\pm(1.5\%$ of rdg + 5dgts)

Open Circuit Voltage: about 0.5V

Overload Protection: 250V DC/AC rms

5-5. CONTINUITY

Range	Introduction	Remark
	The built-in buzzer will sound if the resistance is less than about 50 Ω .	Open circuit voltage: about 0.5V

Overload Protection: 250V DC/AC rms

6. OPERATION INSTRUCTION

6-1. Measuring Voltage

1. Connect the BLACK test lead to the "COM" jack and the RED to the "V Ω " jack.
2. Set Function/Range Switch to desired V or V range.
3. Connect the test leads across the source or load to be measured.
4. Read LCD display. The polarity of the RED lead connection will be indicated when making a DC measurement.

Note: To avoid damage to the meter, do not measure a voltage which exceeds 600Vdc or 600Vac.

6-2. Measuring AC Current

1. Set Function/Range Switch to the 600A range. If the display indicates one or more leading zeros. Shift to the below small range to improve the resolution of the measurement.
2. Press the trigger to open the transformer jaws and clamp one conductor only it is impossible to make measurements when two or three conductors are clamped at the same time.

3. Display reading is flow the conductor AC current.

6-3. Measure Resistance

1. Connect the BLACK test lead to the “COM” jack and the RED to the “VΩ \rightarrow ” jack (Note: The polarity of the red test lead is positive “+”).
2. Set Function/Range Switch to 200KΩ range.
3. Connect the test leads across the load to be measured.
4. Read the reading on the display.

Note:

- a. When the input is not connected, i.e. at open circuit, the symbol “OL” will be displayed as an over range indicator.
- b. Before measuring in-circuit resistance, be sure that the circuit under test has all power removed and all capacitors are fully discharged.

6-4. Continuity Test

1. Connect the BLACK test lead to the “COM” jack and the RED to the “VΩ \rightarrow ” jack (Note: The polarity of the red test lead is positive “+”).
2. Set Function/Range Switch to $\rightarrow \bullet \parallel$ range, LCD shows “OL”
3. Press the “HOLD” Button to select continuity test mode, and the symbol “ $\bullet \parallel$ ” will appear as an indicator.
4. Connect the test leads across the load to be measured.
5. If the circuit resistance is lower than about 50Ω, the built-in buzzer will sound.

6-5. Diode Test

1. Connect the BLACK test lead to the “COM” jack and the RED to the “VΩ \rightarrow ” jack (Note: The polarity of the red test lead is positive “+”).
2. Set Function/Range Switch to $\rightarrow \bullet \parallel$ range, LCD shows “OL”, Meter displays measurement diode function by default, the symbol “ \rightarrow ” will appear as an indicator.
3. Connect the red test lead to the anode of the diode to


be measured and black test lead to cathode.

4. The forward voltage drop in mV will be displayed. If the diode is reversed, figure “OL” will be shown.

6-4. Continuity Test

1. Push “HOLD” button when measuring, data will be held, and “H” signal appears. Data won’t be refreshed until this button is pushed again. Then “H” will disappear, and quit the state of data hold.
2. The data hold and continuity test function use same button, So the diode and continuity test data cannot be held.

7. BATTERY REPLACEMENT& AUTO POWER OFF

1. Power off the instrument within 15 minutes without operation, There will be an audible warning before the instrument automatically shuts down.
2. If the sign “” appear on the LCD, it indicates battery should be replaced. Remove screws and open the back case, replace the exhausted battery with new batteries (Size AAA, 1.5V x2 or equivalent).

8. ACCESSORIES

Owners manual:	1 piece
Test leads:	1 pair
Battery (Size AAA):	2 pieces

WARRANTY

This Instrument is warranted to be free from defects in material and workmanship for a period of one year. Any instrument found defective within one year from the delivery date and returned to the factory with transportation charges prepaid, will be repaired, adjusted, or replaced at no charge to the original purchaser. This warranty does not cover expandable items such as batteries & fuses. If the defect has been caused by a misuse or abnormal operating conditions, the repair will be billed at a nominal cost.