**3 1/2 AUTO RANGE & AUTO POWER OFF**
**AC CLAMP DIGITAL MULTIMETER**
**OPERATION MANUAL**

***This LCD Auto Range & Auto Power off AC clamp digital multimeter is a portable, compact , 3 1/2 digits multimeter . It is ideally suited for field , lab , shop, car, and home applications.***

## 1. SPECIFICATIONS

### 1.1 GENERAL SPECIFICATIONS

Display : 3 1/2 digits LCD with a max. reading of 1999.
Range control : Auto range control.
Polarity : Automatic negative polarity indication.
Zero adjustment : Automatic.
Overrange indication : The "OL" display.
Lowbattery : The "▭" is display when the battery is weak.
Auto Power Off: 15 minutes after stopping the switch or no key-input past, the meter automatically enters to power off mode.
Safety standards : **EMC/LVD.** The meter is up to the standards of IEC1010 Pollution Degree 2, Overvoltage Category II.
Clamp opening size : 22mm.
Operating environment: Temperature 32 to140 °F (0°C to 40°C), humidity< 85% RH.



Storage environment :Temperature -4 to140°F (-20°C to 60 °C), humidity< 95%RH.
Power : 3 x 1.5V AAA batteries.
Dimension :131.5(H) x61(W) x24.8(D) mm
Weight : Approx. 135g (including battery)

### 1.2 ELECTRICAL SPECIFICATIONS

Accuracy is ±(% of reading + number in last digit) at 23 ±5 °C , <75% RH.

AC and DC Voltage

| Range | Resolution | Accuracy | |
|---|---|---|---|
| | | ACV | DCV |
| 200mV | 0.1mV | (not) | ±(0.8%+3) |
| 2V | 1mV | ±(1.5%+3) | ±(1.2%+3) |
| 20V | 10mV | | |
| 200V | 0.1V | | |
| 600V | 1V | ±(1.5%+5) | |

Impedance : 10MΩ.
Frequency response: 40~400Hz
(40~100Hz on 600V range)

AC Current (for clamp)

| Range | Resolution | Accuracy | Frequency response |
|---|---|---|---|
| 2A | 0.001A | ±(4.0%+10) | 50Hz~60Hz |
| 20A | 0.01A | ±(2.5%+5) | |
| 200A | 0.1A | | |

Overload protection: 600Arms within 60 seconds.



Resistance

| Range | Resolution | Accuracy |
|---|---|---|
| 200Ω | 0.1Ω | ±(1.0%+2) |
| 2kΩ | 1Ω | ±(1.5%+2) |
| 20kΩ | 10Ω | |
| 200kΩ | 0.1kΩ | |
| 2MΩ | 1kΩ | |
| 20MΩ | 0.01MΩ | ±(2.0%+3) |

Overload protection : 250V DC/ACrms.

Diode and Audible Continuity Tes

| Range | Description |
|---|---|
| Continuity | Buzzer sounds if the resistance is less than 70Ω±30Ω |
| Diode | (1)Testing current: approx. 0.6mA<br>(2) Open voltage:approx. 1.5V |

Overload protection : 250V DC/ACrms.

## 2. OPERATION

**WARNING**

1. When measuring voltage ensure that instrument is not connected or switched to resistance range. Always ensure that the correct terminals are used for the type of measurement to be made.
2. Use extreme care when measuring voltage above 50V, especially from sources where high energy is existed.
3. Avoid making connections to "live" circuits whenever possible.



4. Before making resistance measurements or diode test, ensure that the circuit under test is de energized.
5. Always ensure that the correct function and range is selected.
6. Extreme care should be taken when using the instrument to conjunction with a current transformer connected to the terminals if an open circuit occurs.
7. Ensure that the test leads and probes are in good condition with no damage to the insulation.
8. Take care not to exceed the over-load limits as given in the specifications.
9. Before opening the cover of the battery cabinet to replace batteries, disconnect the test leads from any external circuit, set the selector switch to "OFF" position.
10. Keep the fingers after the protection ring when measuring through the instrument lead.

### 2.1 Check the 1.5-volt battery.

If the battery is weak, a "▭" symbol will appear on the right of the display. It means that the battery should be replaced.

2.2 DC and AC Voltage measurement

1. Connect the black test lead to "COM" socket and red test leads to the "VΩ⊣▶" socket.
2. Set the selector switch to desired " V≃ " position.
3. Press "ELECT" key to choose DC or AC voltage measurement.
4. Connect the probes across the source or load under measurement.



### 2.3 AC Current measurement

1. Set the selector switch to desired " 2A/20A~" or "200A~" position.
2. Open the clamp by pressing the jaw-opening handle and insert the cable (one cable only) to be measured into the jaw.
3. Close the clamp and get the reading from the LCD panel.

Note:

a) Before this measurement, disconnect the test lead with the meter for safety.
b) In some occasion that the reading is hard to read, press the "D-HOLD" key and read the result later.

### 2.4 Resistance measurement

1. Connect the black test lead to "COM" socket and red test leads to the "VΩ⊣▶" socket.
2. Set the selector switch to "Ω ⊣▶ •))" position.
3. Press "SELECT" key to choose Ω or ⊣▶ and •)) measurement
4. Connect the probes across circuit to be tested.
   Caution: Ensure that the circuit to be tested is "dead".
   Max. input over-load: 250V RMS. and<10sec.
5. Under the Low Resistance Range, the Users are requested to short the meter probes to get the resistance of test leads, which is needed to deduct from this measurement.

### 2.5 Diode, continuity test

1. Connect the Back test lead to the "COM" jack and the RED test lead to "VΩ⊣▶" jack.
2. Set the Function rotary switch to " Ω ⊣▶•))", position, then Push SELECT key, the sign " ⊣▶ " appear on display.
3. Connect the test lead across the diode under measurement.



4. The meter display forward voltage drop.

### 2.6 Continuity Measurement

1. Connect the Black test lead to the "COM" jack and the RED test lead to " VΩ ⊣▶ " jack.
2. Set the Function rotary switch to " VΩ •)) ",position, then Push SELECT key two imes, the sign " •)) " appear on display.
3. Connect the test leads across circuit to be tested.
   Caution: Ensure that the circuit to be tested is "dead".
4. The beeper sounds continuity point is below 70Ω±30Ω

### 2.7 Auto Power Off

When the meter has been turned on 15 minutes without any action from the users, the meter will automatically change to " **OFF**" mode.

### 2.8 Data Hold

Press " **DH**" button meter enter data hold mode and press this button again the meter exit hold mode.

### 2.9 MAX Hold

Press " **MH**" button meter enter max data hold mode and press this button again the meter exit max data hold mode, when the function MAX HOLD is active, however the display value is the maximum reading during the whole measurement procedure.

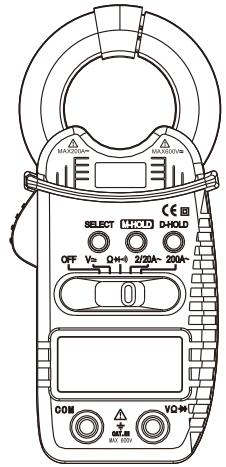
## 3.CARE AND MAINTENANCE

### 3.1 CARING FOR YOUR MULTIMETER

Your Digital MultiMate is an example of superior design and craftsmanship. The following suggestions will help you care for the multimeter so you can enjoy it for years.



# OPERATION MANUAL




DIGITAL CLAMP MULTIMETER CE

1. Keep the multimeter dry. If it gets wet, wipe it dry immediately. Liquids can contain minerals that can corrode electronic circuits.
2. Use and store the multimeter only in normal temperature environments. Temperature extremes can shorten the life of electronic devices, damage batteries, and distort or melt plastic parts.
3. Handle the multimeter gently and carefully. Dropping it can damage the circuit boards and case and can cause the multimeter to work improperly although the holster can provide enough protection.
4. Keep the multimeter away from dust and dirt, which can cause premature wear of parts.
5. Wipe the multimeter with a damp cloth occasionally to keep it looking new. Do not use harsh chemicals, cleaning solvents, or strong detergents to clean the multimeter.
6. Use only fresh batteries of the required size and type. Always remove old or weak batteries. They can leak chemicals that destroy electronic circuits.