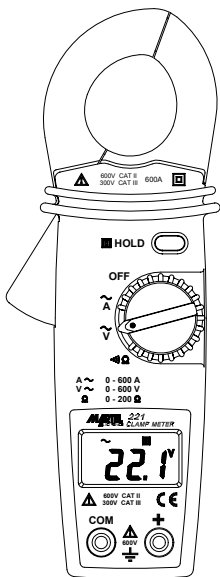


**MARTEL**  
ELECTRONICS

**221**

**TEST TOOLS**

**CE**



# Instruction Manual



**MINI CLAMP METER**

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## I. Safety Information

Do not operate the tester if the meter body or test lead(s) look broken.


Check the main function dial and make sure it is at the correct position before each measurement.

Do not perform resistance and continuity tests on a live power system.

Do not apply voltage between the test terminals and test terminal to ground that exceeds the maximum limit as defined in this manual.

Exercise extreme caution when measuring live systems with voltages greater than 60V DC or 30V AC.

Keep fingers behind the protection ring when taking measurements.

Change the battery when the  symbol appears to avoid erroneous data.

### **Environmental Conditions:**




Altitude up to 2000 meters.


Operating temperature: 0°C ~ 40°C, <80% RH, non-condensing

Storage temperature: -10°C ~ 60°C, <70% RH, battery removed

Pollution Degree: 2

### **Explanation of Symbols:**

-  Attention! Refer to operation Instructions.
-  Dangerous voltage may be present at terminals.
-  This instrument has double insulation.

Approvals:  EN61010 600V CAT II 300V CAT III

## II. Specification

### General Specification:

#### Digital Display:

3 1/2 digits LCD display with maximum reading 1999


#### Over Load:

When the indication is larger than the 1999 counts, the LCD will show 1000 with blinking 1

#### Sample Rate:

2 times/sec

#### Low Power Indication:

When the battery needs to be replaced, the  symbol will appear on the LCD display.

**Power Source:** UM-4 or AAA 1.5V battery x 2.

**Clamp opening size:** 25mm

#### Dimension (L x W x H) :

187x50x29mm, 7.36x1.97x1.14 inch

**Weight:** 210g (including battery)

#### Accessory:

Instruction Manual, Carrying Case, Test leads, Batteries 1.5Vx2

**Battery Life:** 1000 Hr. approx. (alkaline battery)

### Electrical Specification:

The accuracy specification is defined as  $\pm (\dots\% \text{reading} + \dots \text{count})$

At  $23 \pm 5^\circ\text{C}$ ,  $\leq 80\% \text{RH}$

#### ACA (Autorange)

Range	Resolution	Accuracy ( 50Hz~60Hz)	Overload Protection
200A	0.1A	2%+5	660Arms
600A	1A		

**ACV (Autorange)**

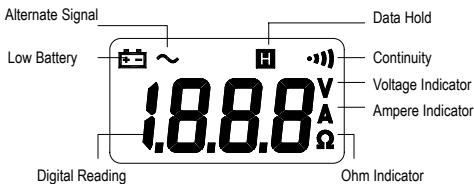
Range	Resolution	Accuracy (50Hz~500Hz)	Overload Protection
200V	0.1V	1.5%+5	660Vrms
600V	1V		

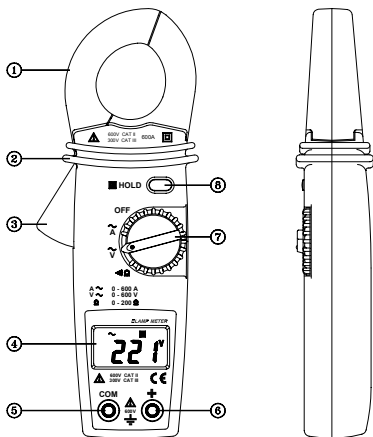
**Ohm (  $\Omega$  )**

Range	Resolution	Accuracy	MAX Test Voltage	Overload Protection
200 $\Omega$	0.1 $\Omega$	1.9%+3	1.6VDC	500Vrms

**Continuity (  $\cdot \cdot \cdot \cdot$  )**

Range	Active Region	MAX Test Voltage	Overload Protection
$\cdot \cdot \cdot \cdot$	<100 Ohm	1.6VDC	500Vrms

**III. Instrument Familiarization:****Symbol Definition:**

**Instrument Familiarization:**

- |                          |                           |
|--------------------------|---------------------------|
| ① Current Sensing Clamp  | ⑥ Positive input terminal |
| ② Safety protection ring | ⑦ Function select dial    |
| ③ Clamp opening handle   | ⑧ Data hold button        |
| ④ LCD display            |                           |
| ⑤ COM input terminal     |                           |

## IV. Measuring Instruction:

### 4.1 ACA measurement:

Before taking AC Ampere measurements, disconnect the test lead from the meter for safety.

Switch the function selector to A~ range.

Open the clamp by pressing the jaw-opening handle and insert the cable to be measured into the jaw.

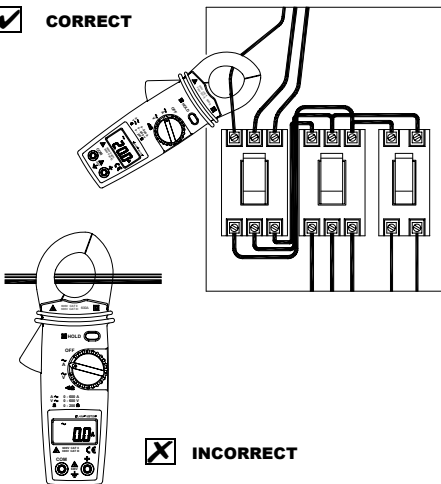
Close the clamp and get the reading from the LCD panel.

### Note:

In locations where reading the display is difficult, push the HOLD button to freeze the display and read the result later.



**CORRECT**



**INCORRECT**

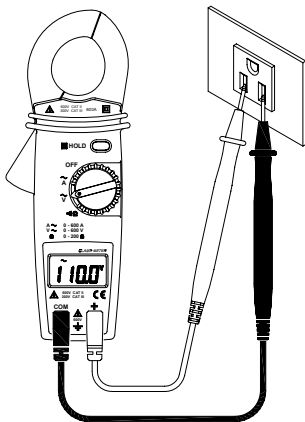
#### 4.2 ACV measurement:

Switch the function selector to  $V\sim$  range.

Connect red test lead to “+” terminal and black test lead to the “COM” terminal.

Measure the voltage by touching the test lead tips to the test circuit where the value of voltage is needed.

Read the result from the LCD panel.



### 4.3 Resistance measurement:

Switch the function selector to  $\Omega$  range.

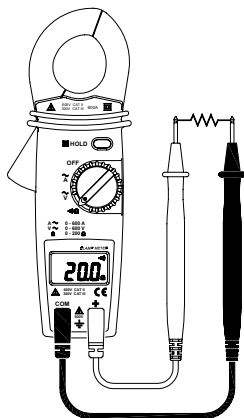
Connect red test lead to “+” terminal and black test lead to the “COM” terminal.

Touch the tip of the test leads to the points where the value of the resistance is needed.

Read the result from the LCD panel.

**Note:**

When measuring resistance, make sure the power to the circuit is cut off and all capacitors are discharged.



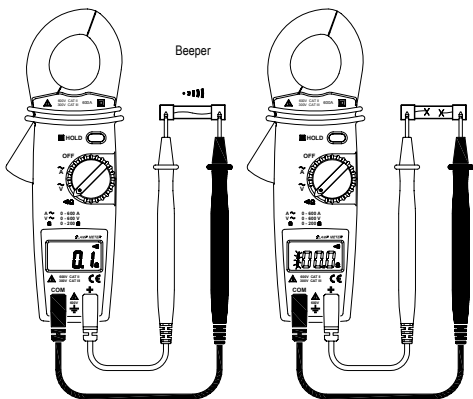
#### 4.4 Continuity Test:

Switch the function selector to  $\Omega$  range.


Connect red test lead to “+” terminal and black test lead to the “COM” terminal.

Touch tip of the test leads to the points where continuity is to be measured.

If the resistance is under  $100\Omega$ , the beeper will sound continuously.



**V. Battery Changing:**

1. When the batteries need to be replaced, the  symbol will appear on the LCD display.
2. Before changing the battery, switch the function selector to "OFF" and disconnect the test leads.  
Open the back cover with a screwdriver. Replace the old batteries with two UM-4 or AAA size batteries.
3. Close the back cover and fasten the screw.

**VI. Maintenance:****CAUTION**

To avoid contamination or static damage, do not touch the circuit board without proper static protection.

**REMARKS**

- \* If the meter is not going to be used for a long time, remove the batteries. Do not store the meter in high temperature or high humidity environments.
- \* When making current measurements, keep the cable at the center of the clamp for more accurate readings.

**CLEANING**

Periodically wipe the case with a dry cloth. Do not use detergent, abrasives, or solvents on this instrument.

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E-Mail: [support@marteltesttools.com](mailto:support@marteltesttools.com)

Web: <http://www.marteltesttools.com>

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