# Table of Contents

Instruction ....................................................................................... 1  
Check the Accessories ........................................................... 1  
Safety Information ........................................................................ 1  
Electrical Symbols .......................................................................... 3  
Front Panel Description .............................................................. 3  
LCD Display Symbols .................................................................... 4  
Button Function and Auto Power Off ............................................ 4  
Making Measurements ..................................................................... 6  
  Measuring DC Voltage ................................................................. 6  
  Measuring AC Voltage ................................................................. 7  
  Measuring Resistance ................................................................. 7  
Testing Diode .................................................................................. 8  
Testing Continuity .......................................................................... 9  
Testing Temperature (Only for the model with temperature test function) ................................................................. 9  
Measuring AC Current ................................................................... 10  
General Specifications ................................................................. 10  
Electrical Specifications .............................................................. 11  
Replacing the Batteries ................................................................. 13
Instruction

CM240 digital clamp meter is a $3\frac{1}{2}$ - digit LCD multi-meter with steady operations, fashionable structure and highly reliable measuring instrument. The meter uses large scale of integrated circuit with double integrated A/D converter as its core and has full range overload protection. The meter can perform measurements of AC and DC voltage, AC current, resistance, temperature (optional), diode and continuity test.

Warning

To avoid electric shock or personal injury, read the “Safety Information” and "Safety Warning" carefully before using the meter.

Check the Accessories

Open the package case and take out the Meter. Check the following items carefully to see any missing or damaged part:

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
<th>Quantity</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>User Manual</td>
<td>1 piece</td>
</tr>
<tr>
<td>2</td>
<td>Test Lead</td>
<td>1 pair</td>
</tr>
<tr>
<td>3</td>
<td>K-type thermocouple (only for the model with</td>
<td>1 pair</td>
</tr>
<tr>
<td></td>
<td>temperature test function)</td>
<td></td>
</tr>
</tbody>
</table>

In the event you find any missing or damage, please contact your dealer immediately.

Safety Information

This digital clamp meter has been designed according safety standard IEC-61010-1 and LECI010-2-032 concerning electronic measuring instruments with an over voltage
category (CAT II 600V) and pollution degree 2.

**Safety Warning**
1. Read the operating instructions before using the instrument and pay particular attention to all WARNINGS and CAUTIONS in this instruction manual.
2. Be sure that the cover and the test leads of the meter are in good conditions.
3. Set the range / function switch at the correct position when measuring.
4. Make sure to insert the red and the black test leads to their appropriate jacks. The black test lead should be connected first when measuring while the red test lead should be disconnected first after measuring.
5. When the range and function changes, both test leads should be disconnected.
6. To avoid damage to the instrument, never exceed the allowable maximum input of each range.
7. Be care of electric shock hazard when the voltage to be tested is above DC 60V or AC 30V.
8. To avoid electric shock, do not open the battery compartment cover when making measurement.
9. Remove the test leads from the circuit being measured before replacing the battery.
10. Do not change the built-in circuit to avoid damage to the meter.
11. Do not use or store the instrument in an explosive atmosphere (i.e. the presence of flammable gas or fume, vapor or dust).
12. CAT II-Measurement Category II 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 III and IV.
Electrical Symbols

| ![Warning] | Warning |
| ![Ground] | Earth Ground |
| ![Double insulated] | Double insulated (Protection class II) |
| ![Alternating signal test] | Direct signal test |
| ![Continuity buzzer] | Continuity buzzer |
| ![Diode test] | Diode test |
| ![Low Battery] | Low Battery |
| ![AC or DC] | AC or DC |
| ![Conforms to European Union directives] | Conforms to European Union directives |
| ![HAZARDOUS LIVE conductors] | Application around and removal from HAZARDOUS LIVE conductors is permitted. |
| ![Capacitor] | Capacitor |

Front Panel Description

1. Input Terminals
2. LCD Display
3. Functional Buttons (SEL/MAX/HOLD)
4. Rotary Switch
5. Trigger: press the lever to open the transformer jaw.
6. Hand Guards: to protect user's hand from touching the dangerous area.
7. Transformer Jaw: designed to pick up the AC and DC current flowing through the conductor. It could transfer current to voltage. The tested conductor must vertically go through the Jaw center.
LCD Display Symbols

1. Alternating signal test
2. Direct signal test
3. Low Battery
4. Auto range mode
5. Diode test
6. Continuity buzzer
7. The maximum value is being measured
8. This indicates that the display data is being held
9. Temperature test
10. Ohms, kilo-ohms, mega-ohms resistance test
11. Amperes (current)
12. Milli-volts, volts (voltage)
13. Negative polar mark
14. "OL": The input value is too large for the selected range.

Button Function and Auto Power Off

1. **H**: For measuring data hold, press the H button, the peak value of current data will be keeping displaying on LCD; press it again to cancel this function.

2. **MAX**: Maximum data hold button, when press this button, the A/D converter will keep measuring, and the display updating the data and hold the maximum data.

3. **SEL**: Function selection button, press for switching ohm/diode/continuity/temperature function when tested objects change.

4. **Auto-power off**: If there is no any operation within any fifteen minutes after power is on, the meter will auto power off. Turn the rotary switch or press any function button to resume operation of the meter under the auto power off mode. At the same time
when power on, if press the "H" button, auto power off will be disabled.

**Note:**
- When the meter auto power off under temperature measuring function, and rotate the selector to any measuring function, the meter will be able to resume operation, except ACV measuring function.
- After automatic turn-off, then press H to re-start, the function of automatic turn-off will be cancel.

5. **Buzzer**
Set the selector to any measuring function (except 2/20A ACV function), press any button, the buzzer will sound; otherwise, the button is idleness. One minutes before auto power off, the buzzer continue sound in five times, and one long buzz before power off.

**Note:** when the selector in measuring function of 2/20A ACV, the buzzer won’t sound.

6. **The Effectiveness of Functional Buttons**
Not every functional buttons can be used on every rotary switch positions. Below table describe which functional buttons can be used on which rotary switch positions.

For the model without temperature test function:

<table>
<thead>
<tr>
<th>Range</th>
<th>Functional Buttons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>LIGHT</td>
</tr>
<tr>
<td>DC Voltage</td>
<td>●</td>
</tr>
<tr>
<td>AC Voltage</td>
<td>●</td>
</tr>
<tr>
<td>Resistance</td>
<td>●</td>
</tr>
<tr>
<td>Continuity, Diode test</td>
<td>●</td>
</tr>
<tr>
<td>DC current 2/20A</td>
<td>●</td>
</tr>
<tr>
<td>AC current 200/400A</td>
<td>●</td>
</tr>
</tbody>
</table>
Making Measurements

For the model with temperature test function:

<table>
<thead>
<tr>
<th>Range</th>
<th>Functional Buttons</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>SEL</td>
</tr>
<tr>
<td>DC Voltage</td>
<td>N/A</td>
</tr>
<tr>
<td>AC Voltage</td>
<td>N/A</td>
</tr>
<tr>
<td>Resistance, Continuity, Diode test</td>
<td>●</td>
</tr>
<tr>
<td>Temperature °C/°F (K-Type)</td>
<td>●</td>
</tr>
<tr>
<td>DC current 2/20A</td>
<td>N/A</td>
</tr>
<tr>
<td>AC current 200/400A</td>
<td>N/A</td>
</tr>
</tbody>
</table>

Making Measurements

Measuring DC Voltage

⚠️ WARNING

Beware of Electrocution
Pay special attention to avoid electric shock when measuring high voltage.
Do not input the voltage which more than 600V DC.

1) Plug the black test lead into the COM jack and the red test lead into the INPUT Jack.
2) Set the rotary switch to V position to make the meter get into DC V range.
3) Connect the test leads to the voltage source or load terminals for measurement.
4) Take the reading on the LCD.

When DC voltage measurement has been completed, disconnect the connection between the testing leads and the circuit under test and remove testing leads from the input terminals.
Making Measurements

Measuring AC Voltage

⚠️ WARNING
Beware of Electrocution
Pay special attention to avoid electric shock when measuring high voltage. Do not input the voltage which more than 600V rms AC.

1) Plug the black test lead into the COM jack and the red test lead into the INPUT Jack.
2) Set the rotary switch to V~ position to make the meter get into AC V range.
3) Connect the test leads to the voltage source or load terminals for measurement.
4) Take the reading on the LCD.

When AC voltage measurement has been completed, disconnect the connection between the testing leads and the circuit under test and remove testing leads from the input terminals.

Measuring Resistance

⚠️ WARNING
To avoid possible damage to your multimeter or to the equipment under test, disconnect the circuit power and discharge all high-voltage capacitors before measuring resistance.
Making Measurements

1) Plug the black test lead into the **COM** jack and the red test lead into the **INPUT** Jack.

2) Set the rotary switch to **Ω**/**Ω**/**Ω** range position.

3) Connect the test leads to the ends of the resistance or circuit for measurement.

4) Take the reading on the LCD.

To obtain a more precise reading, you could remove the objects being tested from the circuit when measuring.

**Testing Diode**

⚠️ **WARNING**

To avoid possible damage to your multimeter or to the equipment under test, disconnect the circuit power and discharge all high-voltage capacitors before testing diodes.

1) Plug the black test lead into the **COM** jack and the red test lead into the **INPUT** Jack.

2) Set the rotary switch to **Ω**/**Ω**/**Ω** range position.

3) Press the "SEL" button to switch to **Ω** test.

4) Connect the red test leads to the anode and the black test lead to the cathode of the diode for testing.

5) Take the reading on the LCD.

To obtain a more precise reading, you could remove the objects being tested from the circuit when measuring.
Testing Continuity

**WARNING**
To avoid possible damage to your multimeter or to the equipment under test, disconnect the circuit power and discharge all high-voltage capacitors before testing for continuity.

1) Plug the black test lead into the **COM** jack and the red test lead into the **INPUT** Jack.

2) Set the rotary switch to **Ω/Ω/Ω** range position.

3) Press the "SEL" button to switch to **Ω** continuity test.

4) Connect the test leads to the ends of the resistance or circuit for measurement.

The buzzer sounds if the resistance of a circuit under test is less than 30Ω.
The buzzer may or may not sounds if the resistance of a circuit under test is between 30Ω to 100Ω.
The buzzer does not sound if the resistance of a circuit under test is higher than 100Ω.

**Testing Temperature** (Only for the model with temperature test function)

1) Plug the black connection of the K-type thermocouple into the **COM** jack and the red connection into the **INPUT** Jack.

2) Set the rotary switch to **°C/°F** range position. The default unit is °C. Press the "SEL" button to change the temperature units between °C or °F.

3) Connect the red test leads to the
anode and the black test lead to the cathode of the temperature load for testing.

4) Take the reading on the LCD.

**Measuring AC Current**

⚠️ **WARNING**
Beware of Electrocution.
Ensure that the test leads are disconnected from the meter before making current clamp measurements.

1) Set the rotary switch to the 2/20A or 200/400A range position.
2) Press the trigger to open jaw. Fully enclose only one conductor.
3) Take the reading on the LCD.

**Note:**
- For right results, do not enclose more than one conductor in the jaw.
- For optimum results, center the conductor in the jaw.

**General Specifications**

1. Auto range and manual range options are available.
2. Over range protection is provided for all ranges.
3. Display: $3 \frac{1}{2}$ - digit (1999 count)
5. Sampling speed: 3 time/sec
6. Unit display: Function and unit symbols displayed
7. Polarity: Automatic negative polarity display
8. Overload indication: Symbol "OL" appears on the LCD
9. Low battery indication: Symbol $\mathbb{E}$ appears on the LCD
10. Auto power off time: 15 min
Electrical Specifications

11. Operation temperature: 0 to 30°C (≦ 75%RH), 30°C to 40°C (≦ 70%RH), 40°C to 50°C (≦ 40%RH)
12. Storage temperature: -20°C to 60°C, ≦ 75%RH
13. Operation power: Two 1.5V, AAA batteries
14. Dimension: 65mm(W) x 177mm(L) x 28mm(D)
15. Weight: 186g

Electrical Specifications

Accuracy: ± (%reading + digits)
Operation temperature: 23°C, ≦ 75%RH

1. AC Voltage: Auto Range

<table>
<thead>
<tr>
<th>Range</th>
<th>Resolution</th>
<th>Accuracy</th>
<th>Overload protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>2 V</td>
<td>1 mV</td>
<td>± (1.2%+5d)</td>
<td>600V rms</td>
</tr>
<tr>
<td>20 V</td>
<td>10 mV</td>
<td>± (1.2%+5d)</td>
<td></td>
</tr>
<tr>
<td>200 V</td>
<td>100 mV</td>
<td>± (1.2%+5d)</td>
<td></td>
</tr>
<tr>
<td>600 V</td>
<td>1 V</td>
<td>± (1.5%+5d)</td>
<td></td>
</tr>
</tbody>
</table>

Input impedance: 10 MΩ
Frequency range: 40 Hz – 1 kHz

2. DC Voltage: Auto Range

<table>
<thead>
<tr>
<th>Range</th>
<th>Resolution</th>
<th>Accuracy</th>
<th>Overload protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>200 mV</td>
<td>0.1 mV</td>
<td>± (0.8%+5d)</td>
<td>600V rms</td>
</tr>
<tr>
<td>2 V</td>
<td>1 mV</td>
<td>± (0.8%+5d)</td>
<td></td>
</tr>
<tr>
<td>20 V</td>
<td>10 mV</td>
<td>± (0.8%+5d)</td>
<td></td>
</tr>
<tr>
<td>200 V</td>
<td>100 mV</td>
<td>± (0.8%+5d)</td>
<td></td>
</tr>
<tr>
<td>600 V</td>
<td>1 V</td>
<td>± (1.0%+5d)</td>
<td></td>
</tr>
</tbody>
</table>

Input impedance: 10 MΩ
### Electrical Specifications

#### 3. Resistance: Auto Range

<table>
<thead>
<tr>
<th>Range</th>
<th>Resolution</th>
<th>Accuracy</th>
<th>Overload protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>200.0 Ω</td>
<td>100 mΩ</td>
<td>± (1.2%+5d)</td>
<td></td>
</tr>
<tr>
<td>2.000 kΩ</td>
<td>1 Ω</td>
<td>± (1%+3d)</td>
<td>600 Vp</td>
</tr>
<tr>
<td>20.00 kΩ</td>
<td>10 Ω</td>
<td>± (1.2%+5d)</td>
<td></td>
</tr>
<tr>
<td>200.0 kΩ</td>
<td>100 Ω</td>
<td>± (1.2%+5d)</td>
<td></td>
</tr>
<tr>
<td>2.000 MΩ</td>
<td>1 kΩ</td>
<td>± (1.2%+5d)</td>
<td></td>
</tr>
<tr>
<td>20.00 MΩ</td>
<td>10 kΩ</td>
<td>± (1.5%+5d)</td>
<td></td>
</tr>
</tbody>
</table>

#### 4. Continuity:

<table>
<thead>
<tr>
<th>Range</th>
<th>Resolution</th>
<th>Accuracy</th>
<th>Overload protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>•[ ]</td>
<td>100 mΩ</td>
<td>Built-in buzzer will sound, if resistance is lower than ≤30Ω (Open circuit voltage is about 0.45V)</td>
<td>600 Vp</td>
</tr>
</tbody>
</table>

**Note:**
The buzzer may or may not sounds if the resistance of a circuit under test is between 30Ω to 100Ω.
The buzzer does not sound if the resistance of a circuit under test is higher than 100Ω.

#### 5. Diode:

<table>
<thead>
<tr>
<th>Range</th>
<th>Resolution</th>
<th>Accuracy</th>
<th>Overload protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>➤</td>
<td>1 mV</td>
<td>Displaying approximate forward voltage of diode (Open circuit voltage is about 1.48V)</td>
<td>600 Vp</td>
</tr>
</tbody>
</table>
### Replacing the Batteries

**6. Temperature**: °C/°F (Only for the model with temperature test function)

<table>
<thead>
<tr>
<th>Range</th>
<th>Resolution</th>
<th>Accuracy</th>
<th>Overload protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>-40°C to 1000°C</td>
<td>1°C</td>
<td>-40°C to 0°C ± (3%+4d)</td>
<td>600 Vp</td>
</tr>
<tr>
<td></td>
<td></td>
<td>0°C to 400°C ± (1%+3d)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>400°C to 1000°C ± (2%+10d)</td>
<td></td>
</tr>
<tr>
<td>-40°F to 1832°F</td>
<td>1°F</td>
<td>-40°F to 32°F ± (3%+8d)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>32°F to 752°F ± (1%+6d)</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>752°F to 1832°F ± (2%+18d)</td>
<td></td>
</tr>
</tbody>
</table>

**7. AC Current**: Auto Range

<table>
<thead>
<tr>
<th>Range</th>
<th>Resolution</th>
<th>Accuracy</th>
<th>Frequency Response</th>
<th>Overload protection</th>
</tr>
</thead>
<tbody>
<tr>
<td>2.000 A</td>
<td>1 mA</td>
<td>±(4%+20d) ≤ 0.4A</td>
<td>50 Hz - 60 Hz</td>
<td>400 A rms</td>
</tr>
<tr>
<td></td>
<td></td>
<td>±(3%+15d)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>20.00 A</td>
<td>10 mA</td>
<td>±(3%+15d) ≤ 0.4A</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>±(2%+10d)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>200.0 A</td>
<td>0.1 A</td>
<td>±(2%+5d)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>400 A</td>
<td>1 A</td>
<td>±(2%+5d)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Response: Average responding, calibrated in rms of sine wave

---

**Replacing the Batteries**

⚠️ **WARNING**

To avoid electric shock, make sure that the test leads have been clearly moved away from the circuit under measurement before opening the battery cover of the meter.

1) If the sign ☢️ appears, it means that the batteries should be replaced.
2) Loosen the fixing screw of the battery cover and remove it.
3) Replace the exhausted batteries with new one.
4) Put the battery cover back and fix it again to its origin from.

**Note:**

Do not reverse the poles of the batteries.