# GTC
General Technologies Corp

# CM100

## 1. SAFETY RULES

- This meter is designed for indoor use at temperatures between 0°C to 40°C and altitudes up to 2,000m.
- To ensure that the meter is used safely, follow all safety and operating instructions in this operation manual. If the meter is not used as described in this operation manual, the safety features of this meter might be impaired.
- Do not use the meter if the meter or test leads look damaged ,or if you suspect that the meter is not operating properly.
- When using the instrument, keep your fingers behind the finger guards on the plastic casing and probes.
- Disconnect the live test lead before disconnecting the common test lead.
- Make sure power is off before cutting, desoldering, or breaking the circuit wires. Small amounts of current can be dangerous.
- Do not apply more than 600 VDC or 600V AC rms between a terminal and ground.
- To avoid electrical shock, use CAUTION when working above 60V DC or 25V AC rms. Such voltages pose a shock hazard.
- Never make measurements with the battery cover off.
- To avoid electrical shock or damage to the meter, do not exceed the input limits.

## 2. INTERNATIONAL SYMBOLS

| | | | |
|---|---|---|---|
| ⚠ | Important information see manual | ⚠ | Dangerous Voltages |
| ∿ | AC | •)) | Continuity |
| ⎓ | DC | ⏚ | Ground |
| | | ▣ | Double Insulation |

## 3. TECHNICAL SPECIFICATIONS

### 3.1 General Specifications

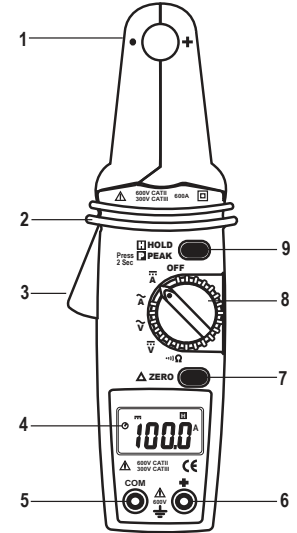| | |
|---|---|
| Display: | 4 digits LCD, 9999 counts and engineering units annunciator display |
| Polarity: | Automatic, (-) negative polarity indication |
| Zero adjustment: | One touch button |
| Sample rate: | 0.5 Sec. |
| Peak hold sample time: | 10 mS for DCV and DCA |
| Over range indication: | Only the "OL" is displayed |
| Power: | 2x UM-4 or AAA 1.5 Volt battery |
| Auto power off: | Automatically powers off after 30 min. of no operation |
| Battery life: | Approx. 50 hours. (w/ alkaline batteries) |
| Clamp opening size: | 25 mm maximum. |
| Dimension: | 202 x 70 x 34 mm. |
| Weight: | Approx. 180 g. (Including battery) |
| Accesories: | User's Manual, Soft Carrying Pouch, Test Leads and 2 x AAA Alkaline Batteries |

## 3.2 Electrical Specifications

- The mark ⚠ next to the probe tip, is a warning that the input voltage should not exceed the indicated values. This is to prevent damage to the internal circuitry.
- The function switches should be set to the function which you want to test before operation.
- Accuracies are ±(% of reading + number of least significant digits) at 23°C ±5°C, less than 75% RH.

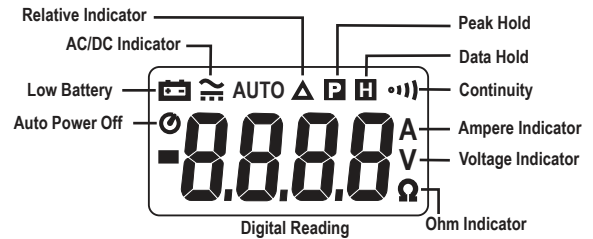| Function | Range | Resolution | Accuracy | Remarks | Overload Protection |
|---|---|---|---|---|---|
| DC Current | 10 A | 1mA | ±(2.5%+10) | - | 150 Arms |
| | 100 A | 10 mA | | | |
| AC Current | 10 A | 1 mA | ±(2%+10) | 50~500Hz | 150 Arms |
| | 100A | 10 mA | | | |
| DC Voltage | 600 V | 0.1 V | ±(1%+2) | - | 660 Vrms |
| AC Voltage | 600 V | 0.1 V | ±(1.5%+5) | 50~500Hz | 660 Vrms |
| Resistance | 100KΩ | 10 Ω | ±(1%+3) | - | 660 Vrms |
| Continuity | Beeps when < 1KΩ | | 3VDC Max. Test Voltage | | 660 Vrms |

## 4. OPERATION

### 4.1 INSTRUMENT DESCRIPTION

1) Current sensing clamp
2) Safety protection ring
3) Clamp opening handle
4) LCD Display
5) COM input terminal
6) Positive input terminal
7) Zero button
8) Function selection knob
9) Peak/Data hold button



### 4.2  LCD Screen Description



Relative Indicator — AC/DC Indicator — Low Battery — Auto Power Off — Peak Hold — Data Hold — Continuity — Ampere Indicator — Voltage Indicator — Digital Reading — Ohm Indicator

### 4.3 Current Measurement

⚠ **CAUTION**: Remove all test leads connected to the instrument before proceeding with this test.

#### 4.3.1  DC Current Measurement

- Set the function selector knob to Ⓐ̄ (DCA).
- To minimize the influence of stray magnetic fields on the measurement, position the clamp as close as possible to the wire to be measured, with the same orientation that will be used for the measurement.
- Press the "ZERO" button.
- The △ symbol will appear in the display.
- Open the clamp by pressing the clamp opening handle, insert the cable or wire inside the current sensing clamp, and then close the clamp.
- Read the measured current on the LCD screen.
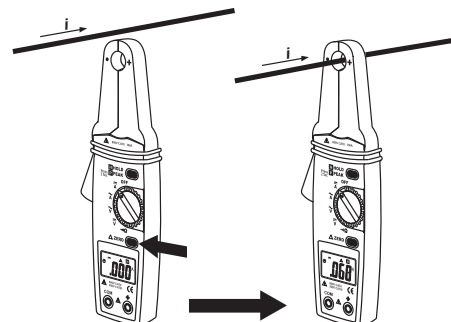
### 4.3.2 AC Current Measurement

Set the function selector knob to $\widetilde{A}$ (ACA). Open the clamp by pressing the clamp opening handle, insert the cable or wire inside the current sensing clamp, and then close the clamp and read from the LCD screen.



**Incorrect**     **Correct**
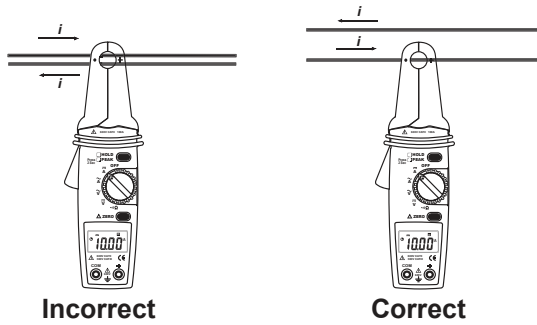
## 4.4 Voltage Measurement

⚠ **CAUTION**: Maximum Input Voltage is 600Vrms, do not exceed this rating to avoid personal injuries or damage to the instrument.
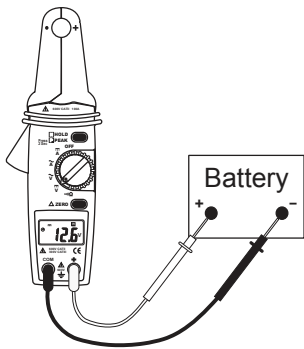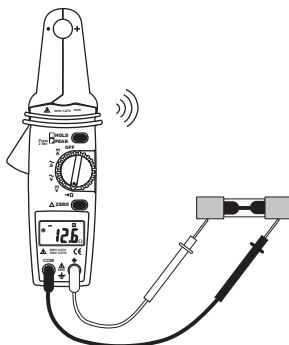


### 4.4.1 DC Voltage Measurement

Set the function selector knob to $\overline{\widetilde{v}}$ (DCV). Insert the red test lead into the positive input terminal (+), and the black test lead into the COM terminal on the front of the instrument. Proceed to connect the test leads across the source or load under measurement. The polarity will be indicated when the tip probe is connected. Read voltage on the display.

### 4.4.2 AC Voltage Measurement

Set the function selector knob to $\widetilde{v}$ (ACV). Insert the red test lead into the positive input terminal (+), and the black test lead into the COM terminal on the front of the instrument. Proceed to connect the test leads across the source or load under measurement. Read voltage on the LCD screen

## 4.5 Resistance and Continuity Measurement

⚠ **CAUTION**: Maximum Input Voltage is 600Vrms, do not exceed this rating to avoid personal injuries or damages to the instrument. Also ensure there is no power applied to the circuit and that all capacitors are discharged.



### 4.5.1 Resistance Measurement

Set the function selector knob to ·⑴Ω (Resistance). Insert the red test lead into the positive input terminal (+), and the black test lead into the COM terminal on the front of the instrument. Proceed to connect the test leads across the component or circuit under test. Read resistance in Ohms on the LCD screen

### 4.5.2 Continuity Test

Set the function selector knob to ·⑴Ω (Resistance). Insert the red test lead into the positive input terminal (+), and the black test lead into the COM terminal on the front of the instrument. Proceed to connect the test leads tips across the component or circuit under test. If the resistance less is than 100Ω,, the buzzer will emit a continuous tone.

## 4.6 Other Functions

### 4.6.1 Relative Measurements

By pressing the ZERO button, the instrument is entered into zero mode and the △ indicator will appear on the LCD screen. The value in the display immediately before pressing the button is stored into memory as a reference value for future tests. To exit the Zero mode press the ZERO button again.

### 4.6.2 Data Hold and Peak Hold

Pressing the HOLD/PEAK button once, the present reading is held and 🄷 appears on the display. Press the switch again to return to normal mode (continuous readings) and to release the data hold feature. The **PEAK HOLD** function is enabled by pressing the HOLD/PEAK button until the 🄿 indicator appears on the screen. When in this mode, the instrument will hold and display the highest reading obtained during the measurement. To exit the peak/hold mode press the HOLD button for approx. 2 sec. until the display indicator turns off. This function works with DCV, ACV, DCA and ACA.

### 4.6.3 Auto Power Off

The meter will turn off automatically after approx. 30 minutes of no operation to extend the battery life. Auto power off can be disabled by pressing and holding down the ZERO button while turning on the instrument, when auto power is off, the symbol ⊙ on the screen will not appear. Auto power off will be re-enable after turning off and on the instrument.

## 5. MAINTENANCE

⚠ **CAUTION:** Before attempting battery removal or replacement, disconnect test leads and remove the instrument from any energized circuit to avoid shock hazard.

### 5.1 Battery Replacement

When the battery needs replacement, the battery symbol 🔋 will be appear in the upper left hand side of the LCD display. To replace the battery, remove the screws at the back cover and replace with a 2 AAA 1.5 V alkaline batteries.

### 5.2 Cleaning

Periodically wipe the case with a soft damp cloth and mild household cleanser. Do not use abrasives or solvents. Ensure that no water gets inside the instrument to prevent possible shorts and damage.

## 6. WARRANTY

One year limited warranty, excluding batteries and fuses. For details see Standard Warranty Information in our webpage or you may request a printed copy.