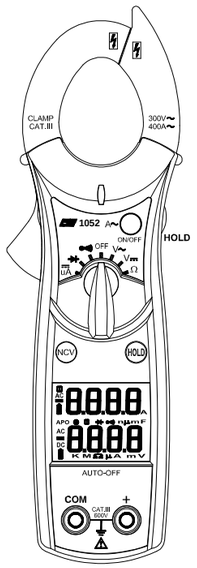
# OPERATING INSTRUCTIONS
# MODEL 1052
## DIGITAL CLAMP METER




## SAFETY INFORMATION

The following safety information must be observed to insure maximum personal safery during the operation at this meter:

Use the Meter only as specified in this manual or the protection provided by the Meter might be impaired.

Test the meter on a known voltage before using it to determine if hazardous voltage is present.

Do not use the meter if the meter or test leads look damaged, or if you suspect that the meter is not operating properly.

Never ground yourself when taking electrical measurements. Do not touch exposed metal pipes, outlets, fixtures, etc., which might be at ground potential. Keep your body isolated from ground by using dry clothing, rubber shoes, rubber mats, or any approved insulating material.

Turn off power to the circuit under test before cutting, unsoldering, or breaking the circuit. Small amounts of current can be dangerous.

Use caution when working above 60V dc or 30V ac rms. Such voltages pose a shock hazard.

When Using the probes, keep your fingers behind the finger guards on the probes.

Measuring voltage which exceeds the limits of the multimeter may damage the meter and expose the operator to a shock hazard. Always recognize the meter voltage limits as stated on the front of the meter.

## SPECIFICATIONS

**Display:** 3¾ digit liquid crystal display (LCD) with a maximum reading of 3999.
**Polarity:** Automatic, positive implied, negative polarity indication.
**Overrange:** (OL) or (-OL) is displayed.
**Zero:** Automatic.
**Low battery indication:** The "⊟" is displayed when the battery voltage drops below the operating level.
**Measurement rate:** 2 times per second, nominal.
**Auto power off:** Approx. 10 minutes.
**Operating environment:** 0°C to 50°C at < 70% relative humidity.
**Storage temperature:** -20°C to 60°C at < 80% relative humidity.
**Accuracy:** Stated accuracy at 23°C±5°C, <75% relative humidity.
**Temperature Coefficient:** 0.1 × (specified accuracy) per °C. (0°C to 18°C, 28°C to 50°C).
**Altitude:** 6561.7 Feet (2000m).
**Jaw opening capability:** 30mm conductor.
**Power:** 3.0V button-type lithium batteries x3 (CR2032).
**Battery life:** 100 hours on AC current range.
100 hours on all ranges.
**Dimensions:** 205.3mm(H)×65.3mm(W)×41.6mm(D).
**Weight:** Approx. 7.8 oz. (220g).
**Accessories:** One pair test leads, 1.5V battery x2 (installed) and Operating Instructions.

## DC VOLTS

**Ranges:** 4V, 40V, 400V, 600V
**Resolution:** 1mV
**Accuracy:** ±(0.5% rdg + 2 dgt)
**Input impedance:** 4V:10MΩ; 40V ~ 600V:9.1MΩ
**Overload protection:** 600VDC or AC rms

## AC VOLTS (50Hz - 500Hz)

**Ranges:** 4V, 40V, 400V, 600V
**Resolution:** 1mV
**Accuracy:** ±(1.2% rdg + 5 dgts) on 4V to 400V ranges
±(2.0% rdg + 5 dgts) on 600V range
**Input impedance:** 4V:10MΩ; 40V ~ 600V:9.1MΩ
**Overload protection:** 600VDC or AC rms

## DC CURRENT

**Ranges:** 400uA, 4000uA
**Resolution:** 0.1uA
**Accuracy:**
±(1.0% rdg + 2 dgts)
**Votage burden:** 1V (8V on 4000uA range
**Overload protection:** 500VDC or AC rms

## AC CURRENT (50Hz - 60Hz)

**Ranges:** 40A, 400A
**Resolution:** 0.01A
**Accuracy:**
±(2.0% rdg + 6 dgts)
**Overload protection:** 400AAC

## RESISTANCE

**Ranges:** 400Ω, 4kΩ, 40kΩ, 400kΩ, 4MΩ, 40MΩ
**Resolution:** 0.1Ω
**Accuracy:**
±(1.0% rdg + 4 dgts) on 400Ω to 400kΩ ranges
±(1.5% rdg +4 dgt) on 4MΩ range
±(3.0% rdg + 5 dgt) on 40MΩ range
**Open circuit volts:** -0.45Vdc (-1.2Vdc on 400Ω range)
**Overload protection:** 500VDC or AC rms

## DIODE TEST

**Test current:** 1.2mA (appreximate)
**Accuracy:** ±(3.0% rdg + 3 dgts)
**Resolution:** 10mV
**Audible indication:** <0.25
**Open circuit volts:** 3.0Vdc typical
**Overload protection:** 500VDC or AC rms

## CONTINUITY

**Range:** 400Ω
**Resolution:** 1Ω
**Audible indication:** Less than 25Ω
**Response time:** 500ms
**Overload protection:** 500VDC or AC rms

**(NCV) NON-CONTACT VOLTAGE INDICATOR**
Detect voltage from 24V to 600VAC 50Hz ~ 60Hz

## OPERATION

Before taking any measurements, read the Safety Information Section. Always examine the instrument for damage, contamination (excessive dirt, grease, etc.) and defects. Examine the test leads for cracked or frayed insulation. If any abnormal conditions exist do not attempt to make any measurements.

### Dual Display

Read the AC current value on top part of the display, and read the value of the selected function at the dial on bottom part of the display. The meter can take measurements of AC current and any function at the dial simultaneously, and can indicate both readings on the display at the same time.

### AC Current/ON-OFF button

Press this button to turn on AC current function. Press again to turn off the function. If the function automatically powers itself down, press the button twice to turn it back on.

## Hold Buttons

The front HOLD button is for use with the functions at the dial. The side HOLD button is for use with the AC current function.

### Voltage Measurements

1. Make sure that the sliding door is set to left position to open input terminals before inserting test leads.
2. Connect the red test lead to the "+" jack and the black test lead to the "COM" jack.
3. Set the Function/Range switch to the desired Voltage type (AC or DC) and range. If magnitude of voltage is not known, set switch to the highest range and reduce until a satisfactory reading is obtained.
4. Connect the test leads to the device or circuit being measured.
5. For dc, a (-) sign is displayed for negative polarity; positive polarity is implied.

### Current Measurements

1. Make sure that the sliding door is set to left position to open input terminals before inserting test leads.
2. Connect the red test lead to the "+" jack and the black test lead to the "COM" jack.
3. Set the Function/Range switch to the uA range.
4. Remove power from the circuit under test and open the normal circuit path where the measurement is to be taken. Connect the meter in series with the circuit.
5. Apply power and read the value from the display.

### AC Current Measurements

1. This instrument is designed to take current measurements on circuits with a maximum voltage difference of 300VAC between any conductor and ground potential. Using it for current measurements on circuits above this voltage may cause electric shock, instrument damage and/or damage to the equipment under test. Before measuring current make certain that the test leads are removed from the instrument. Do not take current readings on circuits where the maximum current potential is not known. Do not exceed the maximum current that this instrument is designed to measure.
2. Set Function Switch to ACA range.
3. Press the trigger to open the transformer jaws and clamp them around a conductor. Jaws should be completely closed before taking a reading.
4. The most accurate reading will be obtained by keeping the conductor across center of the transformer jaws.
5. The reading will be indicated on the display.
6. Reduse the range setting if set too high until a satisfactory best resolution reading is obtained.
7. When taking measurements, keep your fingers behind the finger guards on the clamp head.

### Resistance Measurements

1. Make sure that the sliding door is set to left position to open input terminals before inserting test leads.
2. Set the Function/Range switch to the desired resistance range.
3. Remove power from the equipment under test.
4. Connect the red test lead to the "+" jack and the black test lead to the "COM" jack.
5. Connect the test leads to the points of measurements and read the value from the display.

### Diode Tests

1. Make sure that the sliding door is set to left position to open input terminals before inserting test leads.
2. Connect the red test lead to the "+" jack and the black test lead to the "COM" jack.
3. Set the Function/Range switch to the "⊣◀" position.
4. Turn off power to the circuit under test. External voltage across the components causes invalid readings.
5. Touch probes to the diode. A forward-voltage drop is about 0.6V (typical for a silicon diode).
6. Reverse probes. If the diode is good, "OL" is diaplayed. If the diode is shorted, "0.00" or another number is displayed.
7. If the diode is open, "OL" is displayed in both directions.
8. Audible Indication: Less than 0.25.

### Continuity Measurements

1. Make sure that the sliding door is set to left position to open input terminals before inserting test leads.
2. Set the Funtion switch to the 🔊 position.
3. Turn off power to the circuit under test. External Voltage across the components causes invalid reading.
4. Connect the test leads to the two points at which continuity is to be tested. The buzzer will sound if the resistance is less than approximately 25Ω.

### Non-Contact Voltage Indicator

1. Remove the test leads from the meter. Push the “NCV” button at any selected function/Range. Then the display will be shut down and LED flashes with a short “chirp” sound for self-test.
2. With the NCV tab on the tip of the clamp close to an AC voltage, Press the “NCV” button, the NCV LED will light and the beeper will beep. The closer you get to AC voltage, the louder the beep.

### Auto Power off

1. Auto power off: approx. 10 minutes.
2. When the meter automatically powers itself down while taking measurement with the function at the dial, move the function switch to any other position to re-start the meter.
3. If the AC current function automatically powers itself down, press ”AC Current/ON-OFF “ button twice to turn it back on.

## MAINTENANCE

**WARNING**

Remove test leads before changing battery or performing any servicing.

### Battery Replacement

Power supply: 3.0V button-type lithium batteries x3 (CR2032). One battery for AC current function, and two batteries for function at the dial. Replace batteries with new ones when low battery symbol "⊐" is displayed. To replace the battery, remove the three screws from the back of the meter and lift off the front case. Remove the battery from case bottom.

### Cleaning

Wipe the case with a damp cloth and mild detergent. Do not use abrosives or solvents. Dirt or moisture in the terminals can affect readings.

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**Safety:** Conforms to IEC61010-1 (EN61010-1), CATIII 600V, IEC61010-2-032 (EN61010-2-032), CAT III300V, Class II, Pollution degree 2 Indoor use.
CAT III: Is for measurements performed in the building installation.
EMC: Conforms to EN61326.

**The symbols used on this instrument are:**

- Dangerous voltage.
- Caution, refer to accompanying documents
- Equipment protected throughout by Double insulation (Class II)
- Alternating current
- Direct current
- Ground

P/N: 7000-1770