

## DC Voltage

Range	Resolution	Accuracy	Input Impedance	Overload Protection
1000V	1V	$\pm(0.8\% \text{ rdg} + 2 \text{ volts})$	10M $\Omega$	DC1100V AC800V

## AC Voltage

Range	Resolution	Accuracy (40Hz~400Hz)	Input Impedance	Overload Protection
200V	100mV	$\pm(1.2\% \text{ rdg} + .3V)$	10M $\Omega$	DC1100V
750V	1V	$\pm(1.2\% \text{ rdg} + 3V)$		AC800V

Resistance ( $\Omega$ )

Range	Resolution	Accuracy	Max. Open Circuit Voltage	Overload Protection
200 $\Omega$	100m $\Omega$	$\pm(1\% \text{ rdg} + .2 \Omega)$	3.5V	350Vrms
20K $\Omega$	10 $\Omega$	$\pm(1\% \text{ rdg} + 20 \Omega)$	0.3V	

## Frequency (Hz) (10Hz ~ 2KHz)

Range	Resolution	Accuracy	Max. Input Sensitivity	Max. Allowable Voltage
2KHz	1Hz	$\pm(1\% \text{ rdg} + 2\text{Hz})$	100mV	350Vrms

Continuity Check ( $\rightarrow$ )

Range	Description	Max. Open Circuit Voltage	Overload Protection
20A	Built-in Buzzer sounds if conductance is less than 100 $\Omega$	3.5V	350Vrms

Diode ( $\rightarrow$ )

Range	Resolution	Max. Open Circuit Voltage	Overload Protection
$\rightarrow$	1mV	3.5V	350Vrms

## 2. Peak Hold Measurement

(Capture and retain momentary voltage or current surge and display it.)

## AC Current

Range	Resolution	Accuracy (40Hz~400Hz)	Overload Protection
20A	10mA	$\pm(2\% \text{ rdg} + .1A)$	1000A (within 60 sec.)
200A	100mA	$\pm(2\% \text{ rdg} + 1A)$	
600A	1A	$\pm(2\% \text{ rdg} + 10A)$	

**Peak Detect Acquisitions Time:** Approx. 100ms.

(Acquisition time is the minimum duration of a surge for rated accuracy. Accuracy improves for longer peak duration).

## SAFETY RULES

- Never ground yourself when taking electrical measurements. Keep your body isolated from ground by using dry clothing, rubber shoes, rubber mats or any suitable and approved insulating material.
- Disconnect input signal before touching the battery.

## 52240 Digital Clamp Meter

## Instruction Manual

This clamp meter is completely portable, 3 1/2 digit hand held test instrument provides versatile measuring capabilities. It is an ideal tester for maintenance and inspection on all types of electrical equipment.

## FEATURES

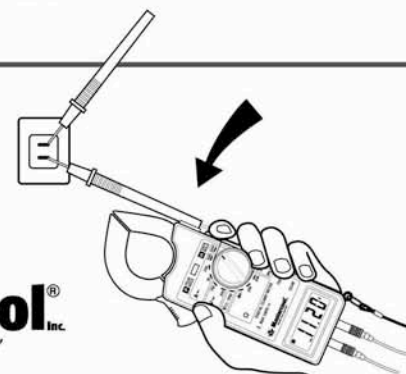
- Multi-Function: Frequency Count, Diode Check and Alarm
- Peak Data Hold
- Unit and Sign Display
- AC current: 20A / 200A / 600A
- AC voltage: 200V / 750V
- DC voltage: 1000V
- Frequency: 2KHz
- Resistance (ohm): 200 ohm / 20k ohm



- Transformer jaws:** Measures the AC current flowing through the conductor.
- PEAK HOLD Switch:** A push switch (push ON, OFF, ON: LCD displays (P) sign). Peak detector holds the maximum RMS value of Current or Voltage surge while a motor is starting.
- Trigger:** Press the lever to open the transformer jaws. When the pressure lever is released, the jaws will close again.
- Display:** 3 1/2 digit (1999 count), unit and sign display.
- V,  $\Omega$ , Hz, " $\rightarrow$ ", " $\rightarrow$ ", " $\rightarrow$ ". Input Connector:** High (+) and Low (-) input jack for all voltage, resistance, frequency, continuity, and diode measurement.
- Slot to clamp in the probe:** Clamp the test probe for measurement.
- DATA HOLD Switch:** A push switch, (Push ON, OFF, ON: LCD displays (H) sign). Holds the reading on the LCD display (for all functions and ranges.)
- Rotary Switch:** A rotary switch is used to select measurement function, Range, and Power (ON/OFF) switch.
- Drop-Preventing Wrist Strap:** Prevents the instrument from slipping off the hand while in use.

## APPLICATIONS

Probe may be snapped into "Slot" so only one hand is needed to hold both the Meter and probe tip in contact with test point.



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## OPERATING INSTRUCTIONS

This section of the manual will provide you with information on measurement techniques to help you fully utilize the measurement capabilities of this instrument.

### AC Current Measurement

This Clamp Meter measures the average value of an AC signal and displays it as an equivalent RMS value for a sine wave. The measurements errors are introduced when the input wave form is distorted (non-sinusoidal). The amount of errors depends upon the amount of distortion. (FIGURE 1) shows the relationship between sine, square, triangular waveforms and the required conversion factors.

1. Set Function/Range switch to desired A~ range. (20A or 200 A or 600 A)
2. Press the trigger to open the transformer jaw and clamp one conductor to be measured. (Figure 2).
3. Read the AC current value on LCD.
4. If you want to hold the display value, push the DATA HOLD switch before removing the transformer jaws from the conductor.

### AC/DC Voltage Measurement

1. Set Function/Range Switch to desired V~ or V " " range.
2. Insert the red test probe to "+" input jack and black test probe to "-" input jack.
3. Connect test prods of test probes IN PARALLEL to the circuit being measured.
4. Read the voltage value on LCD.
5. If you want to hold the display value, push the DATA HOLD switch before disconnecting the probes from the measuring points.

### Resistance Measurement

1. Set Function/Range Switch to desired  $\Omega$  range.
2. Insert the red/black test probes to the "+" and "-" input jacks respectively.
3. Connect the test probes to the circuit being measured and read the resistance value on LCD.

**WARNING: Before taking any in-circuit resistance measurement, remove power from the circuit being tested and discharge all capacitors.**

### Diode Tests ("→")

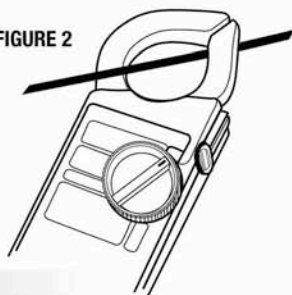
1. Set Function/Range Switch to "→" range.
2. Insert the red test probe to "+" input jack and black test probe to "-" input jack.
3. Connect the Red test probe to the anode side and Black test probe to the cathode side of the diode being tested.
4. Read forward voltage (Vf) Value on LCD.
5. Connect the test probe to the diode, opposite of step 3. the digital display value should be over range (1). This can be used for distinguishing anode and cathode poles of a diode.

**WARNING: Before taking and in-circuit measurement remove power from the circuit being tested and discharge all capacitors in the circuit.**

FIGURE 1

INPUT WAVEFORM	Display Multiplier for Measurement Conversion			
	PK-PK	0-PK	RMS	AVG
SINE PK 0 	2.828	1.414	1.000	0.900
RECTIFIED SINE (FULL WAVE) PK 0 	1.414	1.414	1.000	0.900
RECTIFIED SINE (HALF WAVE) PK 0 	2.828	2.828	1.414	0.900
SQUARE PK 0 	1.800	0.900	0.900	0.900
RECTIFIED SQUARE PK 0 	1.800	1.800	1.272	0.900
RECTANGULAR PULSE PK 0 	0.9/D	0.9/D	0.9/D	0.9/D
TRIANGLE SAWTOOTH PK 0 	3.600	1.800	1.038	0.900

FIGURE 2



### Continuity Measurements ("→")

1. Set Function/Range Switch to "→" position.
2. Insert the red/black test probes to the "+" and "-" input jacks.
3. Connect the test probes to the circuit being measured.
4. When the impedance on circuit is below 100  $\Omega$ , a continuous beep will sound.

### Frequency Measurement (Hz)

1. Set Function/Range Switch to 2 KHz Range.
2. Insert the red/black test probes to the "+" and "-" input jacks.
3. Connect the test probes to the circuit being measured.
4. Read the frequency value (Hz) on LCD.

### PEAK DETECT MEASUREMENT

1. Set Function/Range Switch to desired A ~ or V ~ range.
2. Set the Clamp Meter into the "PEAK HOLD" mode by pushing the "PEAK HOLD" Switch. The LCD display will indicate "P" when Peak Detect mode is measured.
3. Follow this procedure for AC voltage and Current measurement. The displayed reading is the maximum RMS value of a surge in current or a Voltage pulse. The reading decays at the rate of about 1 digi/second.

### GENERAL SPECIFICATIONS

<b>Display:</b>	3 1/2 digit LCD (1999 count) with "P" (Peak Hold), "H" (Data Hold), "-", "BT" (Lo Bat), "~", "V", "A", " $\Omega$ ", "K $\Omega$ ", "KHz" and decimal enunciators.
<b>Sampling Rate:</b>	2.5 times per second.
<b>Diameter of Conductor:</b>	40mm max.
<b>Polarity:</b>	Automatic "-" negative polarity indication.
<b>Range Selection:</b>	All ranges are measured by single range switch operation.
<b>Over Range Indication:</b>	Highest digit of (1) or (-1) is display.
<b>Low Battery Indication:</b>	"BT" appears on display in the last 20% of battery life.
<b>Battery Life:</b>	Up to 200 hours with an Alkaline battery.
<b>Power Requirements:</b>	Single 9V battery.
<b>Operating Temperature and Humidity:</b>	32°F to 104°F (0°C to 40°C) below 80%RH
<b>Storage Temperature and Humidity:</b>	14°F to 140°F (-10°C to 60°C) below 80%RH. 8.2"L x 2.6"W x 1.3"H (208 x 65 x 31mm).
<b>Dimension:</b>	
<b>Weight:</b>	1.6 oz (330g) including battery.
<b>Accessories:</b>	Test probes, Instruction Manual, Carrying Case, Battery.

### ELECTRICAL SPECIFICATIONS

Accuracies are  $\pm$  (% reading + tolerance) at 23°C  $\pm$  5°C below 80%RH.

#### 1. General Measurement

##### AC Current

Range	Resolution	Accuracy (50Hz/60-Hz)	Overload Protection
20A	10mA	$\pm$ (2% rdg + .05A)	1000A (within 60 sec.)
200A	100mA	$\pm$ (2% rdg + .5A)	
600A	1A	$\pm$ (2% rdg + 5A)	