

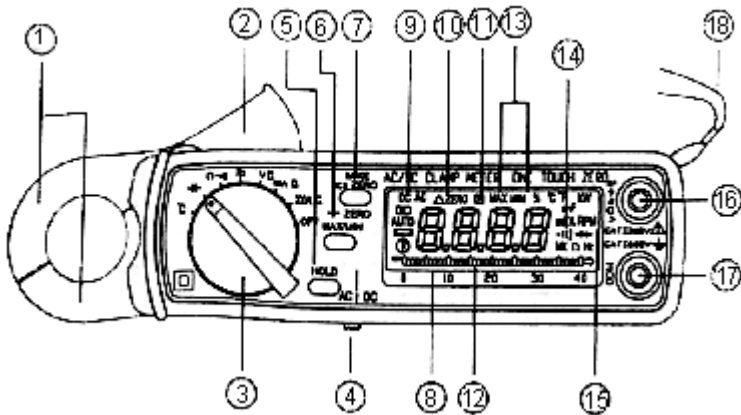
# Digital Multimeter



## 1. Features:

- 10 mA high resolution on 40 A dc / ac range
- Temperature (°F) and capacitance
- One touch zero for DCA adjustment
- Auto-range for V, A,  $\Omega$ , F, and temperature
- 23 mm diameter jaw
- Fast bargraph display (20 times / seconds) for transient observation
- Continuity and frequency measurements
- Maximum / minimum and data hold functions
- 600 V overload protection for ohm measurement
- Ideal for works in crowded switch box or cable areas

## 2. Panel Description



### 1. Transformer Jaw

This is used to pick up current signal. To measure DC / AC current, conductor must be enclosed by the jaw

### 2. Transformer Trigger

This is used to open the jaw

### 3. Function Selector Switch

This is used to select the function user desired, such as DCA, ACA, DCV, ACV, Hz,  $\Omega$  and continuity

### 4. AC / DC Select Switch

This is used to select AC or DC voltage or current

### 5. Data Hold Button

Once this button is pushed, reading shall be held on the LCD. Press again to release it

### 6. Maximum / Minimum Hold Button

This button is used to enable the maximum or minimum value to be displayed and updated during measurement. Press once, minimum value shall be displayed and updated. Press again, maximum value shall be displayed and updated. Press again (the third push), clamp meter return to normal measurement mode. Zero function will be disabled if maximum / minimum is enabled

## 7. Zero / Relative Button

Once this button is pressed, the current reading shall be set to zero and be used as a zero reference value for all other subsequent measurement. The function is also used to remove offset value caused by the residual magnetism remained in the core for the DC current measurement. The function is also used to remove offset value caused by the residual magnetism remained in the core for the DC current measurement. The Zero / Relative function will be disabled if the maximum / minimum button is pressed

## 8. LCD

This is a 3 3/4 digits liquid crystal display with maximum indication of 3,999. Function symbols, units, bargraph, sign, decimal points, low battery symbols, maximum / minimum symbols, and zero symbol are included

## 9. Low Battery Symbol

When this symbol appears, it means the battery voltage drops below the minimum required voltage. Refer to section V for battery replacement

## 10. Zero / Relative Symbol

When this symbol appears, it means a reference value has been subtracted from the actual reading. The reading shown is a offseted value. Press and hold the zero button for 2 seconds to disable this function

## 11. Data Hold Symbol

Once the hold button is pressed, this symbol appears on LCD

## 12. Bargraph

Bargraph has forty segments. It displays segments proportional to the actual reading. Each segment represent one count.

## 13. Maximum / Minimum Hold Symbol

Once the max/min button is pressed, either maximum or minimum shall be displayed on LCD

## 14. Continuity Symbol

If ohm and continuity function is selected, this symbol shall appears on LCD

## 15. Units Symbols

Once a function is selected, corresponding unit (V, Q, A, or Hz) shall be displayed on LCD

## 16. VΩHz Input Terminal

This terminal is used as input for voltage, ohm/continuity, or frequency measurements

## 17. COM Terminal

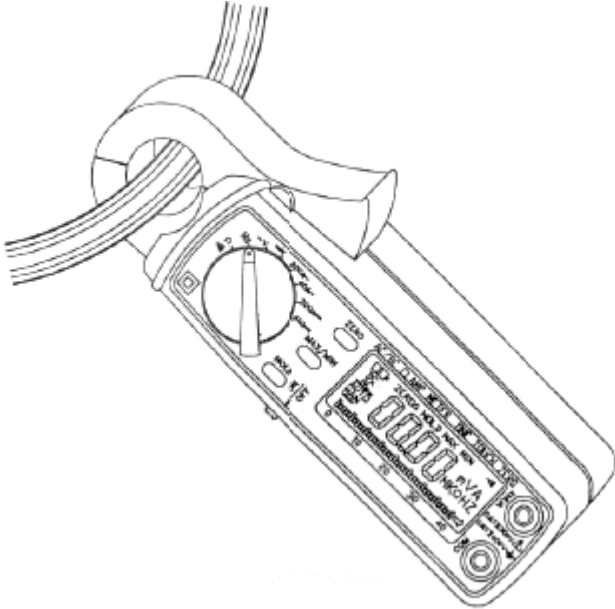
This terminal is used as common reference input

## 18. Hand Strap

Put your hand through the hole of hand strap to avoid accidental drop of the clamp meter

## 3. Operation Instructions

### 3.1 DC / AC Current Measurements



#### 3.1.1 DC Current

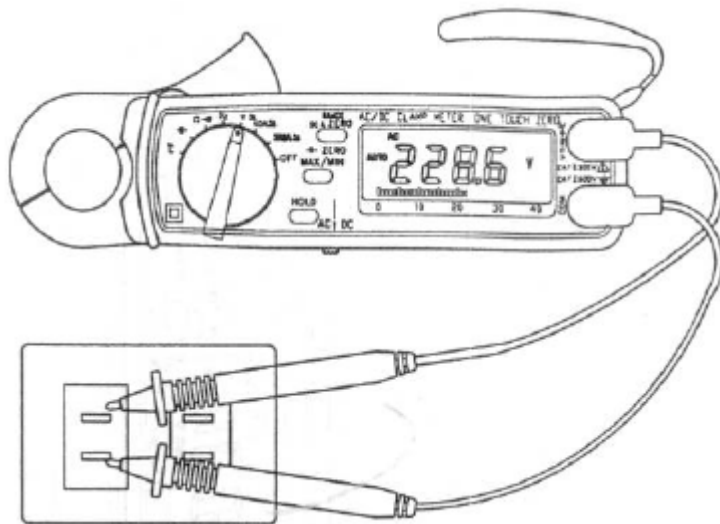
Set the rotary switch at 40 A or 200 A and move the sliding switch to DC  
Push the zero button to adjust the reading to zero  
Press the trigger to open the jaw and fully enclose the conductor to be measured. No air gap is allowed between the two half jaws  
Read the measured value from the LCD display

#### 3.1.2 AC Current

Set the rotary switch at 40 A or 200 A, and move the sliding switch to AC  
Press the trigger to open the jaw and fully enclose the conductor to be measured. No air gap is allowed between the two half jaws  
Read the measured value from the LCD display

**Warning:** Make sure that all the test leads are disconnected from the meter's terminals for current measurement

### 3.2 DC / AC Voltage Measurements



#### 3.2.1 DC Voltage

Set the rotary switch at V dc  
Insert the test leads into the input jack  
Connect the test prods of the test leads in PARALLEL to the circuit to be measured  
Read the measured value from the LCD display

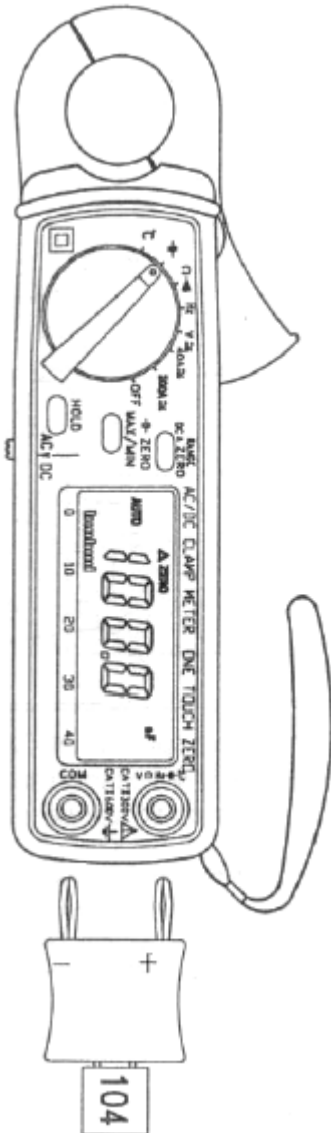
#### 3.2.2 AC Voltage

Set the rotary switch at V ac  
Insert the test leads into the input jack  
Connect the test prods of the test leads in PARALLEL to the circuit to be measured  
Read the measured value from the LCD display

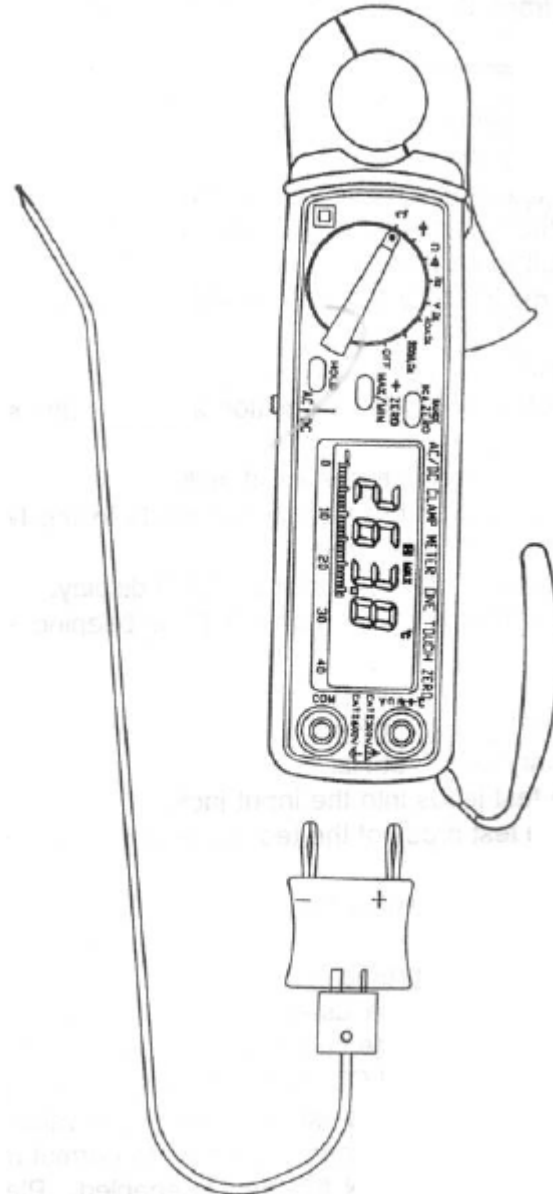
**Warning :** Maximum input for DC V is 1,000, and for AC V is 750. Do not attempt to take any voltage measurement that exceeds the limits. Exceeding the limits could cause electrical shock and damage to the clamp meter

## 3.3 Capacitance Measurement

## 3.4 Temperature Measurement



- Plug the adapter into the terminal
- Insert the capacitor into the adapter
- If the capacitance is less than 4 nF, press ZERO (capacitance) button zero the residual capacitance
- Read the value from LCD



- Plug the adapter into the terminal
- Insert the K-type thermal couple into the adapter
- Read the temperature from LCD

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

### 3.5 Resistance Measurement

Set the rotary switch at  $\Omega$

Insert the test leads into the input jack

Connect the test prods of the test leads to the two ends of the resistor or circuit to be measured

Read the measured value from the LCD display

### 3.6 Continuity Test

Turn the rotary switch to  $\Omega$ , position and move the sliding switch to AC position

Insert the test leads into the input jack

Connect the test probes of the test leads to the two ends of the resistor or circuit to be measured

Read the measured value from the LCD display

If the resistance is lower than  $40 \Omega$ , a beeping sound shall be heard

### 3.7 Frequency (Hz) Measurement

Set the rotary switch at Hz

Insert the test leads into the input jack

Connect the test prods of the test leads in PARALLEL to the signal or circuit to be measured

Read the measured value from the LCD display

### 3.8 Relative Reading Measurements

The zero button also can be used to make a relative measurement. Once the button is pushed, the current reading is set to zero and a zero symbol shall be displayed on LCD. All the subsequent measurement shall be displayed as a relative value with respect to the value being zeroed. Press the zero button for 2 seconds to return to normal mode. But this function is disabled if maximum / minimum function is enabled. Please watch for symbol displayed on LCD

### 3.9 Holding the LCD Reading

Press the HOLD button, then the reading will be hold and kept on LCD

### 3.10 Finding the Maximum / Minimum Value

Press the Maximum / Minimum button to enable the maximum and minimum values to be recorded and updated during measurement. Push the button once, the maximum value shall be displayed and updated. Push again (second push), the minimum value shall be displayed. Push again (third push), Maximum / Minimum function shall be disabled and return to the normal measurement mode. If Maximum / Minimum button is pressed, the ZERO function will be disabled and the ZERO symbol will disappear from LCD

### 3.11 Change from Auto-range Mode to Manual Mode

If users want to select certain range for specific measurement, they can press the RANGE button to select appropriate range. To return to autorange, press and hold the RANGE button for 2 seconds

## 4. Specifications (23°C $\pm 5^\circ\text{C}$ ):

#### DC Current

Range	Resolution	Accuracy	Overload Protection
40 A	10 mA	$\pm 1.5\% \pm 2$ digits	DC 400 A
0 - 150 A	100 mA		
150 - 200 A	100 mA	$\pm 2.2\% \pm 2$ digits	

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## AC Current

Range	Resolution	Accuracy		Overload Protection
		50 / 60 Hz	40 - 1 KHz	
40 A	10 mA	±1.5% ±3 digits	±2% ±4 digits	AC 400 A
0 - 150 A	100 mA			
150 - 200 A	100 mA	±2.2% ±3 digits		

## DC Voltage (Overload Protection : 600 V)

Range	Resolution	Accuracy	Input Impedance
400 mV	0.1 mV	±1.5% ±3 digits	10 MΩ
4 V	1 mV		5 MΩ
40 V	10 mV		
400 V	100 mV		
600 V	1 V		

## AC Voltage (Input Impedance : 5 MΩ)

		Accuracy		Overload Protection
Range	Resolution	50 / 60 Hz	40 - 1 KHz	
400 mV	0.1 mV	-----1	-----1	AC 800 V
0.01 - 4 V	1 mV	±1.5% ±5 digits	±2% ±5 digits	
40 V	10 mV			
400 V	100 mV			
600 V	1 V			

<sup>1</sup> 400 mV is not designed for AC measurement

## Resistance (Ω) : (Open Voltage 0.4 V)

Range	Resolution	Accuracy	Overload Protection
400 Ω	0.1 Ω	±1.5% ±2 digits	AC 600 V
4 KΩ	1 Ω		
40 KΩ	10 Ω		
400 KΩ	100 Ω		
4 MΩ	1 KΩ		
40 MΩ	10 KΩ		



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## Continuity (Open Voltage 0.4 V, Overload Protection AC 600 V)

Range	Resolution	Accuracy	Beeping
40 - 400 $\Omega$	0.1 $\Omega$	$\pm 1\% \pm 2$ digits	<40 $\Omega$ (approximately)

## Frequency

(Auto-range, sensitivity selected by pressing range button):


Range (Hz)	Resolution	Accuracy	Sensitivity	Overload Protection
100 - 100 K	0.01 - 100 Hz	$\pm 0.5\% \pm 2$ digits	0.01 / 0.1 / 1 V	AC 600 V

## Capacitance

Range	Resolution	Accuracy	Overload Protection
4 nF	1 pF	$\pm 5\% \pm 0.2$ nF	AC 600 V
40 nF	10 pF		
400 nF	0.1 nF	$\pm 3\% \pm 0.2$ nF	
4 $\mu$	1 nF	$\pm 3\% \pm 0.002$ $\mu$ F	
40 $\mu$ F	10 nF	$\pm 3\% \pm 0.02$ $\mu$ F	

## Temperature (K Type Thermal Couple with Adapter, °F)

Range	Resolution	Accuracy	Overload Protection
-40 - 0°F	0.1 °F	±2% ±4°F	AC 600 V
0 - 400°F		±0.5% ±4°F	
400 - 1,800°F	1°F		

Conductor Size	: Conductor size : 23 mm maximum (approximately)
Battery Type	: Two 1.5 V SUM-3
Display	: 3 3/4 LCD with 40 seg. bargraph
Range Selection	: manual
Overload Indication	: left most digit blinks
Power Consumption	: 10 mA (approximately)
Low battery Indication	: 
Sampling Time	: 2 times / seconds (display) 20 times / seconds (bargraph)
Operating Temperature	: -10°C to 50°C
Operating Humidity	: less than 85% relative
Altitude	: up to 2,000 m
Storage Temperature	: -20°C to 60°C
Storage Humidity	: Less than 75% relative
Dimension	: 183 mm (L) × 63.6 mm (W) × 35.6 mm (H) 7.2 inches (L) × 2.5 inches (W) × 1.4 inches (H)

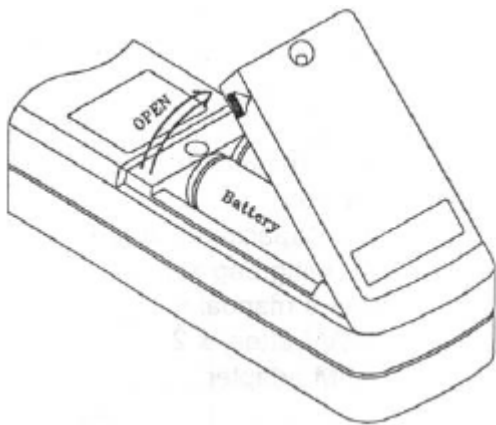


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- Weight : 190 g (battery included)
- Accessories : Adapter  
(for Capacitance and K-type thermal couple)  
Carrying bag × 1  
Users manual × 1  
1.5 V battery × 2
- Option : RPM adapter

## 5. Battery Replacement



When the low battery symbol is displayed on the LCD or LCD display is dark, replace the old batteries with two new batteries  
Turn the power off and remove the test leads from the clamp meter  
Remove the screw of the battery compartment  
Lift and remove the battery compartment  
Remove the old batteries  
Insert two new 1.5 V SUM-3 batteries  
Replace the battery compartment and secure the screw

## 6. Maintenance and Cleaning

Servicing not covered in this manual should only be performed by qualified personnel. Repairs should only be performed by qualified personnel. Periodically wipe the case with a damp cloth and detergent; do not use abrasives or solvents

### Part Number Table

Description	Part Number
Multimeter, Digital, AC / DC + T / C / F	72-6614

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