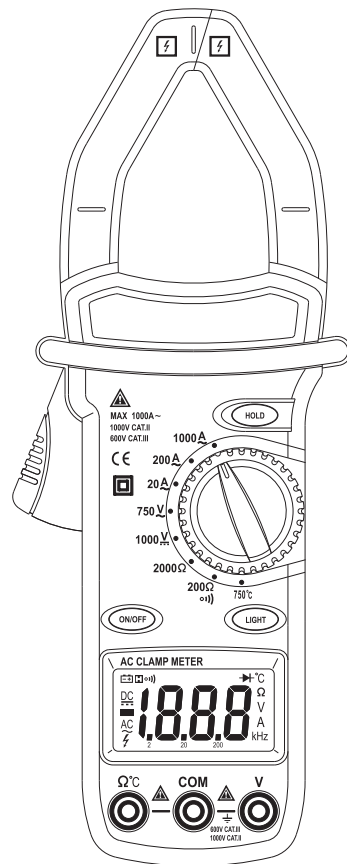


CE EMC&LVD

Designed and Conforms to  
IEC61010-1  
1000V  
CAT II



Y01-04-0083 A0



DIGITAL CLAMP METER  
USERS MANUAL


尺寸：102\*140MM

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## SAFETY INFORMATION


The digital clamp meter has been designed according to IEC1010– 1 and IEC1010–2–032 concerning safety requirements for electrical measuring instruments and hand – held current clamps with overvoltage category 1000V CAT II 600V CAT III and pollution 2.

## SAFETY SYMBOLS

 Important safety information, refer to the operating manual.

 Dangerous voltage may be present.

 Earth ground.

 Double insulation ( Protection class 1000V CAT II 600V CAT III ).



The digital clamp meter complies with the requirements of the following European Community Directives: 89/336/EEC ( Elec- tromagnetic Compatibility ) and 73/23/EEC ( Low Voltage ) as amended by 93/68/EEC ( CE Marking ).

However, electrical noise or intense electromagnetic fields in the vicinity of the equipment may disturb the measurement circuit. Measuring instruments will also respond to unwanted signals that may be present within the measurement circuit.

Users should exercise care and take appropriate precautions to avoid misleading.

## **SAFETY PRECAUTIONS**

Follow all safety and operating instructions to ensure maximum personal safety during the operation and to ensure the meter is used safely and is kept in good operating condition.

- Read these operating instructions thoroughly and completely before operating your meter. Pay particular attention to WARNINGS, which will inform you of potentially dangerous procedures. The instructions in these warnings must be followed.
- Always inspect your meter and test leads for any sign of damage or abnormality before every use. If any abnormal conditions exist (i.e. broken test leads, cracked cases, display not reading, etc.), do not attempt to take any measurements.
- Do not expose the instrument to direct sunlight, extreme temperature or moisture.
- 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 mat, or any approved insulating material.
- You always are careful when working with voltages above 60V dc or 30V ac rms. Keep fingers behind the probe barriers while measuring.
- Never use the meter to measure voltages that might exceed the maximum allowable input value of any function.
- Never touch exposed wiring, connections or any live circuit when attempting to take measurements.

## MAINTENANCE


- Before opening the case, always disconnect test leads from all energized circuits.
- Never use the meter unless the back cover is in place and fastened completely.
- Do not use abrasives or solvents on the meter. To clean it using a damp cloth and mild detergent only.
- Qualified and trained service technicians should only perform calibration and repair of the meter.
- Do not attempt calibration or service unless trained and another person capable of rendering first aid and resuscitation is present.

## DESCRIPTION


### GENERAL DESCRIPTION

This meter is one of a series handheld 3 1/2 digital clamp meter for measuring DC and AC Voltage, AC current, resistance and continuity test with battery operated. Some models also provide frequency or temperature test. Full overload protection. Low battery indication and over-range indication are providing. Following table shows function of the series of clamp meter.

Following table shows function of the series of clamp meter. The round spot represents that the product you purchased.

FUNCTION			
ACV DCV	※	※	※
ACA	※	※	※
$\Omega$	※	※	※
	※		
·)))	※	※	※
TEMPERATURE		※	
FREQUENCY			※

## FRONT PANEL DESCRIPTION

- ① Transformer jaws  
Pick up the AC current flowing through the conductor.
- ② Hold button  
When this button is pushed, the display will keep the last reading and “” symbol will appear on the LCD until pushing it again.
- ③ Rotary switch  
This switch is used to select functions and desired ranges.
- ④ Back light  
To use this function, press the LIGHT button. When this button is pushed, the Back light of display is on. After about 3 – 5 seconds, the Back light is self-off. The Backlight is on again, just push this button once.
- ⑤ Display  
3 1/2 digit, 7 segment, 16mm high, LCD.
- ⑥ “V” jack  
This is positive input terminal for VOLT measurements connection is made to it using the red test lead.
- ⑦ “COM” jack  
This is negative (ground) input terminal for all measurement modes except current. When AC voltage, , Resistance, Audible continuity measuring, is made to it using the black test lead.

When measuring temperature is made to it the negative input terminal of the “K” type thermocouple.

⑧ “ $\Omega$  °C” jack

This is the positive input terminal for ohms. Connection is made to it using the red test lead.

This is the positive input terminal of temperature. Connection is made to it using the positive input terminal of the “K” type thermocouple.

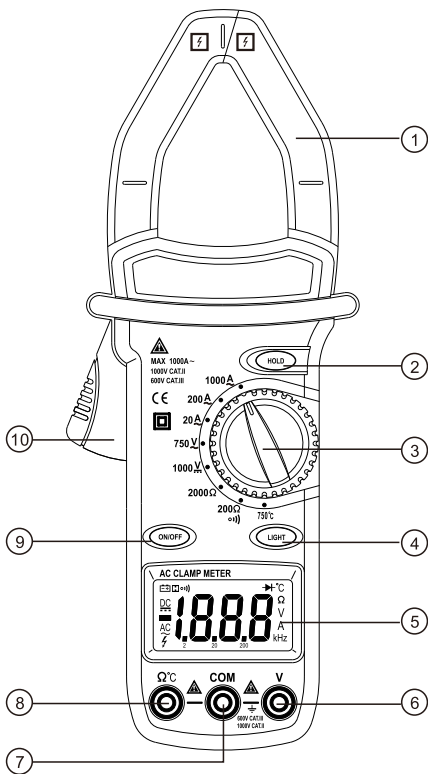
⑨ ON/OFF Switch

A push – push switch is used to turn the meter on or off.

⑩ Trigger

Press the lever to open the transformer jaws. When the lever is released, the jaws will close again.

# CLAMP METER LAYOUT





## **OPERATING INSTRUCTIONS**

### **DC VOLTAGE MEASUREMENT**

1. Connect the red test lead to the “V” jack and the black lead to the “COM” jack.
2. Set rotary switch at desired 1000V  $\overline{\text{---}}$  position.
3. Connect test leads across the source or load being measured.
4. Read voltage value on the LCD display along with the polarity of the red lead connection.

### **AC VOLTAGE MEASUREMENT**

1. Connect the red test lead to “V~” jack and the black test lead to the “COM” jack.
2. Set the rotary switch at desired 750V~ position.
3. Connect test leads across the source or load being measured.
4. Read voltage value on the LCD display.

### **AC CURRENT MEASUREMENT**

1. Set the rotary switch at desired A~ position.
2. Press the trigger to open transformer jaw and to clamp one conductor only, making sure that the jaw is firmly closed around the conductor.
3. Read current value on LCD display.
4. When only the figure “1” is displayed, it indicates overrange situation and the higher range has to be selected.

## RESISTANCE MEASUREMENT

1. Connect the red test lead to “ $\Omega$ ” jack and black test lead to the “COM” jack (The polarity of red lead is positive “+”).
2. Set the rotary switch at desired “ $\Omega$ ” range position.
3. Connect test leads across the resistor to be measured and read LCD display.
4. If the resistance being measured is connected to a circuit, turn off power and discharge all capacitors before applying test probes.

### NOTE:

1. If the resistance being measured exceeds the maximum value of the range selected or the input is not connected, an overrange indication “1” will be displayed.
2. displayed.

When checking in-circuit resistance, be sure the circuit under test has all power removed and that all capacitors have been discharged fully.

## AUDIBLE CONTINUITY TEST

1. Connect red test lead to “ $\Omega$ ” jack, black test lead to “COM” jack.
2. Set range switch to “•||” position.
3. Connect test leads to two points of circuit to be tested. If continuity exists, built-in buzzer will sound.

## **DIODE TEST**

1. Connect the red test lead to “ $\Omega \rightarrow +$ ” jack and the black test lead to the “COM” jack (The polarity of red lead is positive “+”).
2. Set the rotary switch at “ $\rightarrow +$ ” position.
3. Connect the red test lead to the anode of the diode to be tested and the black test lead to the cathode of the diode. The approx. forward voltage drop of the diode will be displayed. If the connection is reversed, only figure “1” will be shown.


## **MEASURING TEMPERATURE**

1. Set the rotary switch at 750°C position.
2. Connect the red lead of “K” type thermocouple into the “ $\Omega \text{ } ^\circ\text{C}$ ” jack and the black lead of “K” type thermocouple into the “COM” jack. The LCD display will show the current environment temperature.
3. Contacting the object be measured with the thermocouple probe.
4. Read temperature value on the LCD display.

## **SPECIFICATIONS**

Accuracy is specified for a period of one year after calibration and at 18 °C to 28 °C (64°F to 82°F) with relative humidity to 80%.

## GENERAL

Maximum voltage between terminals and earth ground	: CAT II 1000V and CAT III 600V
Display	: LCD, 1999 counts, updates 2–3/sec.
Polarity indication	: “–” displayed for negative polarity.
Overrange Indication	: Only figure “1” on the display.
Jaw opening capability	: 42mm (Max conductor size)
Power	: 9V battery, NEDA 1604 6F22 006P.
Low battery indication	: “  ” Appears on the display.
Operating Environment	: 0 to 40°C
Storage temperature	: –10°C to 50°C
Temperature coefficient	: 0.1×specified accuracy) / °C ( <18°C or >28°C )
Altitude	: 2000m
Size	: 250mm×99mm×43mm
Weight	: Approx.460g.

## DC VOLTAGE

Range	Resolution	Accuracy
1000V	1V	±1.0% of rdg ± 2 digits

Input Impedance: 10MΩ

## AC VOLTAGE

Range	Resolution	Accuracy
750V	1V	±1.0 % of rdg ± 5 digits

Input Impedance: 10MΩ

Frequency range: 40Hz to 400Hz. Response: Average responding, calibrated in rms. of a sine wave.

## AC CURRENT

Range	Resolution	Accuracy
20A	0.01A	$\pm 2.0\%$ of rdg $\pm 5$ digits
200A	0.1A	$\pm 2.0\%$ of rdg $\pm 5$ digits
1000A	1A	$\pm 2.0\%$ of rdg $\pm 7$ digits

Overload Protection: 1200A for 60 seconds maximum.

Frequency range: 50Hz to 60Hz.

## RESISTANCE

Range	Resolution	Accuracy
200 $\Omega$	0.1 $\Omega$	$\pm 1.0\%$ of rdg $\pm 3$ digits
2000 $\Omega$	1 $\Omega$	$\pm 1.0\%$ of rdg $\pm 3$ digits

## CONTINUITY

Range	Description
•  )	If continuity exists (about less than 30 $\Omega$ ), built-in buzzer will sound.

## TEMPERATURE

Range	Resolution	Accuracy
400 $^{\circ}$ C~750 $^{\circ}$ C	1 $^{\circ}$ C	$\pm 1.0\%$ of rdg $\pm 5$ digits
0 $^{\circ}$ C~400 $^{\circ}$ C	1 $^{\circ}$ C	$\pm 1.0\%$ of rdg $\pm 3$ digits
-40 $^{\circ}$ C~0 $^{\circ}$ C	1 $^{\circ}$ C	$\pm 1.0\%$ of rdg $\pm 6$ digits

## FREQUENCY

Range	Resolution	Accuracy
2kHz	1Hz	$\pm 1.0\%$ of rdg $\pm 2$ digits


## REPLACING THE BATTERY



### WARNING

Before attempting to open the case of battery, always be sure that test leads have been disconnected from

measurement circuits. Close case and tighten screws completely before using the meter to avoid electrical shock hazard.

If “” appears on display, it indicates that the battery should be replaced. Use the following procedure to replacing the battery:

1. Disconnect test leads from any live source and remove the test leads from the input terminals of the meter. Push the ON/OFF switch to OFF.
2. The battery cover is secured to the bottom case by a screw. Using a screwdriver, remove the screw from the battery cover and remove the battery cover.
3. Remove battery and replace with a new equivalent 9 volt battery.
4. Replace the battery cover and reinstall the screw.

## ACCESSORIES

- Operator's instruction manual
- Set of test leads
- “K” type thermocouple
- Gift box.
- 9 volt battery. NEDA 1604 6F22 006P type.



### CAUTION:

Using this appliance in an environment with a strong radiated radio-frequency electromagnetic field (approximately 3V/m), may influence its measuring accuracy.

The measuring result can be strongly deviating from the actual value.