DC+AC TRMS WATT CLAMP METER

ACM-2348

OPERATING INSTRUCTION

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Safety

International Safety Symbols

This symbol, adjacent to another symbol or terminal, indicates the user must refer to the manual for further information.

This symbol, adjacent to a terminal, indicates that, under normal use, hazardous voltages may be present

Double insulation

SAFETY NOTES

- Do not exceed the maximum allowable input range of any function
- Do not apply voltage to meter when resistance function is selected.
- Set the function switch OFF when the meter is not in use.

WARNINGS

- Set function switch to the appropriate position before measuring.
- When measuring volts do not switch to current/resistance modes.
- When changing ranges using the selector switch always disconnect the test leads from the circuit under test.
- Do not exceed the maximum rated input limits.

CAUTIONS

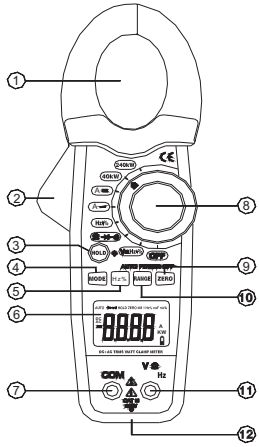
Improper use of this meter can cause damage, shock, injury

or death. Read and understand this user manual before operating the meter.
Always remove the test leads before replacing the battery.
Inspect the condition of the test leads and the meter itself for any damage before operating the meter. Repair or replace any damage before use.
Use great care when making measurements if the voltages are greater than 25VAC rms or 35VDC. These voltages are considered a shock hazard.
Remove the battery if the meter is to be stored for long periods.
Always discharge capacitors and remove power from the device under test before performing Diode, Resistance or Continuity tests.
- Voltage checks on electrical outlets can be difficult and misleading because of the uncertainty of connection to the recessed electrical contacts. Other means should be used to ensure that the terminals are not "live".
- If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.

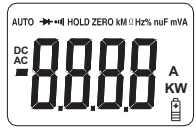
	Input Limits
Function	**Maximum Input**
DC+AC Watt	240KW
A AC,A DC	1000A
V DC, V AC	600V DC/AC
Resistance, Diode, Continuity, Frequency, Duty Cycle, Test	250V DC/AC

Meter Description

1. Current clamp
2. Clamp trigger
3. Data Hold and Backlight button
4. Mode select button
5. Hz/% button
6. LCD display
7. COM input jack
8. Rotary Function swith
9. ZERO button
10. Range select button
11. V Ω Hz jack
12. Battery compartment on rear



1. **AC DC** AC (alternating current) and DC (direct currrent)
2. ▬ Minus sign
3. **8.8.8.8** 4000 count (0 to 3999) measurement reading
4. **AUTO** AutoRange mode
5. →|— Diode test mode
6. •))) Audible Continuity



7. **HOLD** Data Hold mode

9.**KW, μ,m,V,A,K,M,Ω ,** Units of measure list

Specifications

Function	Range & Resolution	Accuracy (% of reading)
DC Current	1000 ADC	± (1.8% + 5 digits)
AC Current	1000 AAC	± (2.0% + 5 digits)
DC Voltage	400.0 mVDC	± (0.8% + 3 digits)
	4.000 VDC	± (1.5% + 3 digits)
	40.00 VDC	
	400.0 VDC	
	600 VDC	± (2.0% + 3 digits)
AC Voltage	400.0 mVAC	± (0.8% + 20 digits)
	4.000 VAC	± (1.8% + 5 digits)
	40.00 VAC	
	400.0 VAC	
	600 VAC	± (2.5% + 5 digits)
Resistance	400.0 Ω	± (1.0% + 4 digits)
	4.000KΩ	± (1.5% + 2 digits)
	40.00KΩ	
	400.0KΩ	
	4.000MΩ	± (2.5% + 3 digits)
	40.00MΩ	± (3.5% + 5 digits)
Frequency	5.000Hz	±(1.5% reading + 5 digits)
	50.00Hz	±(1.2% reading + 2 digits) Sensitivity: 10Vrms min.
	500.0Hz	
	5.000kHz	
	50.00kHz	
	100.0kHz	

Duty Cycle	0.5 to 99.0%	±(1.2% reading + 2 digits)
	Pulse width: 100µs - 100ms, Frequency: 5.000Hz ~ 100.0kHz	
AC WATT (0-250 V,0-400A, 50/60Hz TRMS)	40KW	± (2.5% + 5 digits)
AC WATT (0-600V,0-400A, 50/60Hz TRMS)	240KW	± (2.5% + 5 digits)
DC WATT (0-250 V,0-400A)	40KW	± (2.0% + 5 digits)
DC WATT (0-250 V,0-400A)	240KW	± (2.0% + 5 digits)

Note: No Autoranging & 400mV AC Voltage Range

Clamp size Opening 1.2" (30mm) approx

Diode Test Test current of 0.3mA typical; Open circuit voltage 1.5V DC typical.

Continuity Check Threshold <100Ω; Test current < 1mA

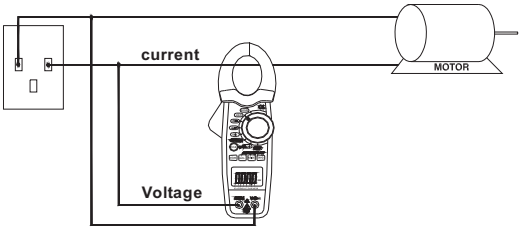
Low Battery Indication " BAT " is displayed

Overrange Indication	"OL" is displayed
Measurements Rate	2 per second, nominal
Input Impedance	7.8MΩ (VDC and VAC)
Display	4000 counts LCD
AC Current	50/60Hz True RMS (AAC)
AC Voltage bandwidth	50/60Hz True RMS (VAC)
Operating Temperature	14 to 122°F (-10 to 50°C)
Storage Temperature	-14 to 140°F (-30 to 60°C)
Relative Humidity	90%(0°C to 30°C); 75%(30°C to 40°C); 45%(40°C to 50°C)
Altitude	Operating: 3000m; Storage 10,000m
Over voltage	Category III 600V
Battery	One "9V" Battery
Auto OFF	approx. 35 minutes
Dimensions/Weight	229x80x49mm/303g
Safety	For indoor use and in accordance with Overvoltage Category II, Pollution Degree 2. Category II includes local level, appliance, portable equipment, etc., with transient overvoltages less than Overvoltage Cat. III

Operation

NOTICES: Read and understand all **warning** and **precaution** statements listed in the safety section of this operation manual prior to using this meter. Set the function select switch to the OFF position when the meter is not in use.

DC+AC Power/Watt Measurements



1. Connect the test leads to the voltage source in parallel with the load.

2. Clamp on one of the wire to the load.

3. Select the range to Voltage AC or DC, and check the voltage reading.

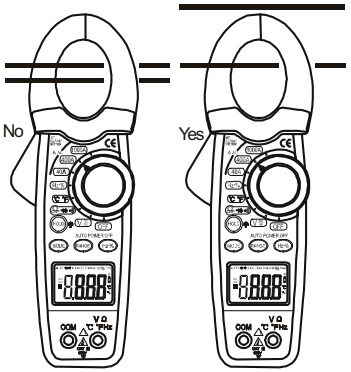
4. Select the range to Current AC or DC, and check the current reading.

5. Select appropriate Watt range 40KW(0-250V,0-400A) or 240KW (0-600V,0-400A).

6. Read the value shown on LCD in KW (AC+DC).

DC/AC Current Measurements

WARNING: Ensure that the test leads are disconnected from the meter before making current clamp measurements. Select AC or DC with the **MODE** button.



DC/AC Voltage Measurements

1. Insert the black test lead into the negative **COM** terminal and the red test lead into the positive **V** terminal.
2. Set the function switch to the V position.
3. Select AC or DC with the **MODE** button.
4. Connect the test leads in parallel to the circuit under test.
5. Read the voltage measurement on the LCD display.

Resistance and Continuity Measurements

1. Insert the black test lead into the negative **COM** terminal and the

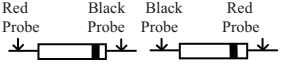
   red test lead into the positive terminal.
2. Set the function switch to the ▶| •))) Ω position.
3. Use the multifunction **MODE** button to select resistance.
4. Touch the test probe tips across the circuit or component under

   test. It is best to disconnect one side of the device under test so

   the rest of the circuit will not interfere with the resistance reading.
5. For Resistance tests, read the resistance on the LCD display.
6. For Continuity tests, if the resistance is < 100Ω, a tone will sound.

Diode Measurements

1. Insert the black test lead banana plug into the negative **COM** jack and the red test lead banana plug into the positive diode jack.
2. Turn the rotary switch to the ▶| **•)))** position.
3. Press the **MODE** button until "▶| " appears in the display.
4. Touch the test probes to the diode under test. Forward voltage will indicate 0.4V to 0.7V. Reverse voltage will indicate "**OL**". Shorted devices will indicate near 0mV and an open device will indicate "**OL**" in both polarities.



Capacitance Measurements

WARNING: To avoid electric shock, disconnect power to the unit under test and discharge all capacitors before taking any capacitance measurements. Remove the batteries and unplug the line cords.

1. Set the rotary function switch to the cap position.
2. Insert the black test lead banana plug into the negative (COM) jack.
   Insert the red test lead banana plug into the positive (V) jack.
3. Touch the test leads to the capacitor to be tested.
4. Read the capacitance value in the display

Frequency or % duty cycle measurements

1. Set the function switch to the V position.
2. Insert the black lead banana plug into the negative COM jack and the red test lead banana plug into the positive V jack.
3. Select Hz or % duty with the **Hz/%** button.
4. Touch the test probe tips to the circuit under test.
5. Read the frequency on the display.

Data Hold and Backlight

To freeze the LCD meter reading, press the data hold button. The data hold button is located on the left side of the meter (top button). While data hold is active, the **HOLD** display icon appears on the LCD. Press the data hold button again to return to normal operation.

Note: The HOLD feature will activate when the Backlight is turned on. Press the HOLD key again to exit Hold.

The backlight function illuminates the display and is used when the ambient light to too low to permit viewing of the displayed readings. Press the (HOLD) button for one second to turn the backlight on and press the button a second time to turn the backlight off.

Manual Ranging

The meter turns on in the autoranging mode. Press the **Range** button to go to manual ranging. Each press of the range button will step to the next range as indicated by the units and decimal point location. Press and hold the **Range** button for two seconds to return to autoranging. Manual ranging does not function in the AC/DC Current ,Watt, Diode and Continuity check functions

Battery Replacement

1. Remove the one rear Phillips head screw
2. Open the battery compartment
3. Replace the Requires one “9V” battery (NEDA1604, 6F22 006P)
4. Re-assemble the meter