

# DIGITAL CLAMP METER OPERATOR'S MANUAL

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## 1. SAFETY INFORMATIONS

The meter is completely portable, LCD, 3 1/2 digit clamp meter with insulation test function (with option 500V insulation tester unit). It has been designed rugged structure, good feeling held in operator's hand and convenient use.

Follow all safety and operating instructions to ensure that the meter is used safely and is kept in good operating condition.

### 1.1 PRELIMINARY

- \* When using this meter, the user must observe all normal safety rules concerning:
  - Protection against the dangers of electronic current.
  - Protection of the meter against misuse.
- \* Full compliance with safety standards can be guaranteed only if used with test leads supplied. If necessary, they must be replaced

with the same model or same electronic ratings. Measuring leads must be in good condition.

## 1.2 DURING USE

- \* Never exceed the protection limit values indicated in specifications for each range of measurement.
- \* When the meter is linked to measurement circuit, do not touch unused terminals.
- \* When the value scale to be measured is unknown beforehand, set the range selector at the highest position.
- \* Before rotating the range selector to change functions, disconnect test leads from the circuit under test.
- \* When carrying out measurements on TV or switching power circuits, always remember that there may be high amplitude voltage pulses at test points which can damage the meter.
- \* Never perform resistance measurements on live circuits.
- \* Always be careful when working with voltage above 60V dc or 30V ac rms. Keep fingers behind the probe barriers while measuring.

## 1.3 SYMBOLS

⚠ Important safety information, refer to the operating manual.

⚡ Dangerous voltage may be present.

COM Earth ground

## 1.4 MAINTENANCE

- \* Before opening the meter, always disconnect test leads from all sources of electric current.
- \* If any faults or abnormalities are observed, the meter can not be used any more and it has to be checked out.
- \* Never use the meter unless the battery cover is in place and fastened fully.
- \* Do not use abrasives or solvents on the meter, use a damp cloth and mild detergent only.

## 2. DESCRIPTION

This meter is one of a series handheld professional measuring instrument, capable of performing functions:

- AC current measurement
- Insulation test
- DC and AC voltage measurement
- Resistance measurement

Some models of this series also provide functions:

- Diode test
- Audible continuity test
- Temperature measurement
- Frequency measurement

### 2.1 FUNCTION AND RANGE SELECTOR

A rotary switch is used to measurement Functions and Ranges. When the switch is set to OFF position, the meter does not operate.

### 2.2 TRANSFORMER JAWS

Pick up the AC current flowing through the conductor. Press the TRIGGER to open the transformer jaws. When the finger press on the TRIGGER is released, the jaws will close again.

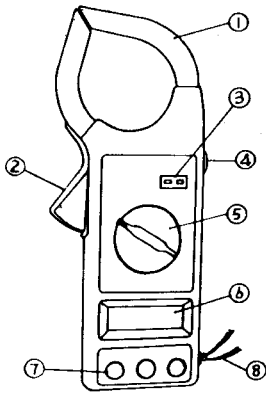
### 2.3 DATA HOLD

A push switch (Push ON, Push OFF. All ACA, ACV, DCV, HZ ranges with this feature)

### 2.4 INPUT JACKS

This meter has three input jacks that are protected against overload to the limits shown.

During use connect the black test lead to COM jack and connect red test



1. TRANSFORMER JAWS
2. TRIGGER
3. TEMPERATURE MEASURING SOCKET
4. DATA HOLD SWITCH
5. ROTARY SWITCH
6. LCD DISPLAY
7. INPUT JACKS
8. DROP - PROOF WRIST STRAP

lead to VΩ jack. The red test lead is depended on function selected.

FUNCTION	RED LEAD CONNECTION	INPUT LIMITS
200mV	VΩ	250V dc or rms ac
DCV & ACV	VΩ	1000V dc, 750V ac (sine)
Hz	VΩ	250V dc or rms ac
Ω	VΩ	250V dc or rms ac
))) ←	VΩ	250V dc or rms ac

The EXT jack is used for accept insulation tester unit EXT banana plugs, when measurement insulation resistance.

### 3. OPERATING INSTRUCTION

#### 3.1 MEASURING CURRENT

1. Set the rotary switch at desired ACA range position. The transformer jaws pick up the AC current flowing through the conductor.
2. When only the figure "1" displayed, it indicates overrange situation and the higher range has to be selected.

#### 3.2 INSULATION TEST

( Option 500V insulation tester unit )

1. Connect the insulation tester unit VΩ, COM, EXT three banana plugs to the clamp meter VΩ, COM, EXT.
2. Set the rotary switch of clamp meter at 2000MΩ position.
3. Set the insulation tester unit range switch to the 2000MΩ position.
4. Use the insulation tester unit of the test leads connect its L, E input connect to being tested installation's. ( Test installation's must be power OFF.)
5. Set the insulation tester power switch to the ON position.
6. Depress the PUSH 500V push-push switch, the 500V on red LED lamp will light. Clamp meter display reading is the insulation resistance value. If the reading is below 19MΩ, change clamp meter and insulation tester unit to 20MΩ range, can be increase the accuracy.
7. If the insulation tester unit is not use, the power switch must shift to power OFF position, and the test leads must leave the E, L input connect. That can be increase battery life and prevent electrical shock hazard.

#### MEASURING VOLTAGE

1. Connect the black test lead to the COM jack and the red test lead to the VΩ jack.

2. Set the rotary switch at the desired DCV or ACV range position and connect test leads across the source or load under measurement. The polarity of the red lead connection will be indicated along with the voltage value when making DC voltage measurement.
3. When only the figure " 1 " is displayed, it indicates overrange situation and the higher range has to be selected.

#### 3.4 MEASURING RESISTANCE

1. Connect the black test lead to the COM jack and the red test lead to the  $V\Omega$  jack.
2. Set the rotary switch at desired  $\Omega$  position and connect test leads across the resistor under measurement.

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

#### 3.5 TESTING DIODE

1. Connect the black test lead to the COM jack and the red test lead to the  $V\Omega$  jack. ( The polarity of red lead is " + " )
2. Set the rotary switch at  $\rightarrow$  position and connect red lead to the anode, black lead to the cathode of the diode under testing. The meter will show the approx. forward voltage of the diode. If the lead connection is reversed, only figure " 1 " displayed.

#### 3.6 CONTINUITY TEST

1. Connect the black test lead to the COM jack and the red test lead to the  $V\Omega$  jack. ( The polarity of the red lead is positive " + " )
2. Set the rotary switch at  $\bullet\bullet\bullet$  position and connect test leads across two points of the circuit under testing. If continuity exists ( i.e. resistance less than about  $50\Omega$  ), built -in buzzer will sound.

#### 3.7 MEASURING TEMPERATURE

1. Set the rotary switch at  $^{\circ}C$  or  $^{\circ}F$  position and the LCD display will show the current environment temperature.
2. Insert " K " type thermocouple into the temperature measuring socket on the front panel and contact the object to be measured with the thermocouple probe. Read LCD display.

$\Delta$  WARNING: To avoid electric shock, be sure the thermocouple has been removed before changing to another function measurement.

#### 3.8 MEASURING FREQUENCY

1. Connect the black test lead to the COM jack and the red test lead to the  $V\Omega$  jack.
2. Set the rotary switch at Hz position and connect test leads across the source or load under measurement.

##### NOTE:

1. Reading is possible at input voltage above 10Vrms, but the accuracy is not guaranteed.
2. In noisy environment, it is preferable to use shield cable for measuring small signal.

#### 4. SPECIFICATIONS

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

##### 4.1 GENERAL

MAXIMUM VOLTAGE BETWEEN TERMINALS AND EARTH GROUND	1000V dc or 750V rms ac (sine)
POWER SUPPLY	9V battery, Neda1604 or 6F22
DISPLAY	LCD, 1999 counts, updates 2-3/sec
MEASURING METHOD	Dual-slope integration A/D converter
OVERRANGE INDICATION	" 1 " figure only on the display
POLARITY INDICATION	" - " displayed for negative polar.
OPERATING TEMPERATURE	$0^{\circ}C$ to $40^{\circ}C$ ( $32^{\circ}F$ to $104^{\circ}F$ )
STORAGE TEMPERATURE	$-10^{\circ}C$ to $50^{\circ}C$ ( $14^{\circ}F$ to $122^{\circ}F$ )

**LOW BATTERY INDICATION**  
**SIZE (H×W×L) 37mm×90mm×230mm**

**" BAT " appears on the display**  
**WEIGHT 320g (including battery)**

**4.2 AC CURRENT**

Range	Resolution	Accuracy	Note
20A	10mA	±2.0%of rdg ±5 digits	≤ 800A > 800A
200A	100mA	±2.0%of rdg ±5 digits	
1000A	1A	±2.0%of rdg ±5 digits	
		±3.0%of rdg ±5 digits	

**Frequency Range: 50Hz to 60Hz Response: Average, Calibrated in rms of sine wave**  
**Overload protection: 1200A within 60 seconds. Jaw Opening: 2" (5cm)**

**4.3 INSULATION TEST ( With option 500V insulation tester unit )**

Range	Resolution	Accuracy	Note
20M Ω	10K Ω	±2.0%of (rdg-m) ±2 digits	≤ 500M Ω > 500M Ω
2000M Ω	1M Ω	±4.0%of (rdg-n) ±2 digits	
		±5.0%of (rdg-n) ±2 digits	

Use the 266 clamp meter with the 261 insulation tester : m=0、n=0  
 Use the 266F clamp meter with the 261 insulation tester : m=50、n=100  
 Use the 266C clamp meter with the 261 insulation tester : m=50、n=100

**4.4 AC VOLTAGE**

Range	Resolution	Accuracy
200V	0.1V	±1.0%of rdg ±4 digits
750V	1V	±1.0%of rdg ±4 digits

**Input Impedance: ≥9M Ω**  
**Frequency Range: 50Hz to 500Hz**  
**Response: Average, calibrated in rms of sine wave**

**4.5 DC VOLTAGE**

Range	Resolution	Accuracy
200mV	0.1mV	±0.5%of rdg ±1 digit
2V	1mV	±0.5%of rdg ±1 digit
20V	10mV	±0.5%of rdg ±1 digit
200V	0.1V	±0.5%of rdg ±1 digit
1000V	1V	±0.8%of rdg ±2 digits

**Input Impedance: ≥9M Ω**

**4.6 RESISTANCE**

Range	Resolution	Accuracy
200 Ω	0.1 Ω	±1.0%of rdg ±3 digits
2K Ω	1 Ω	±1.0%of rdg ±1 digit
20K Ω	10 Ω	±1.0%of rdg ±1 digit
200K Ω	100 Ω	±1.0%of rdg ±1 digit
2M Ω	1K Ω	±1.0%of rdg ±1 digit

#### 4.7 TEMPERATURE

Range	Resolution	Accuracy	
		0°C to 400°C (32° F to 752° F)	400°C to 750°C (752° F to 1382° F)
0°C to 750°C	1°C	±1.0% of rdg	±2.0% of rdg
32° F to 1382° F	1° F	±3 digits	±1 digit

#### 4.8 FREQUENCY

Range	Resolution	Accuracy
2KHz	1Hz	±1.5% of rdg ±5 digits

#### 5. ACCESSORIES

##### 5.1 SUPPLIED WITH THE MULTIMETER

Test Leads	HYTL - 266
Battery	9V NEDA 1604 or 6F22
Operating Manual	HYS004249

##### 5.2 OPTIONAL ACCESSORY

"K" type thermocouple	HYTP - 010
INSULATION TESTER UNIT	261

#### 6. BATTERY REPLACEMENT

If the sign "BAT" appears on the LCD display, it indicates that battery should be replaced. Remove the battery cover of case. Replace the exhausted battery with a new one.

##### ⚠WARNING

Before attempting to open the battery cover, be sure that test leads have been disconnected from measurement circuits to avoid electric shock hazard.