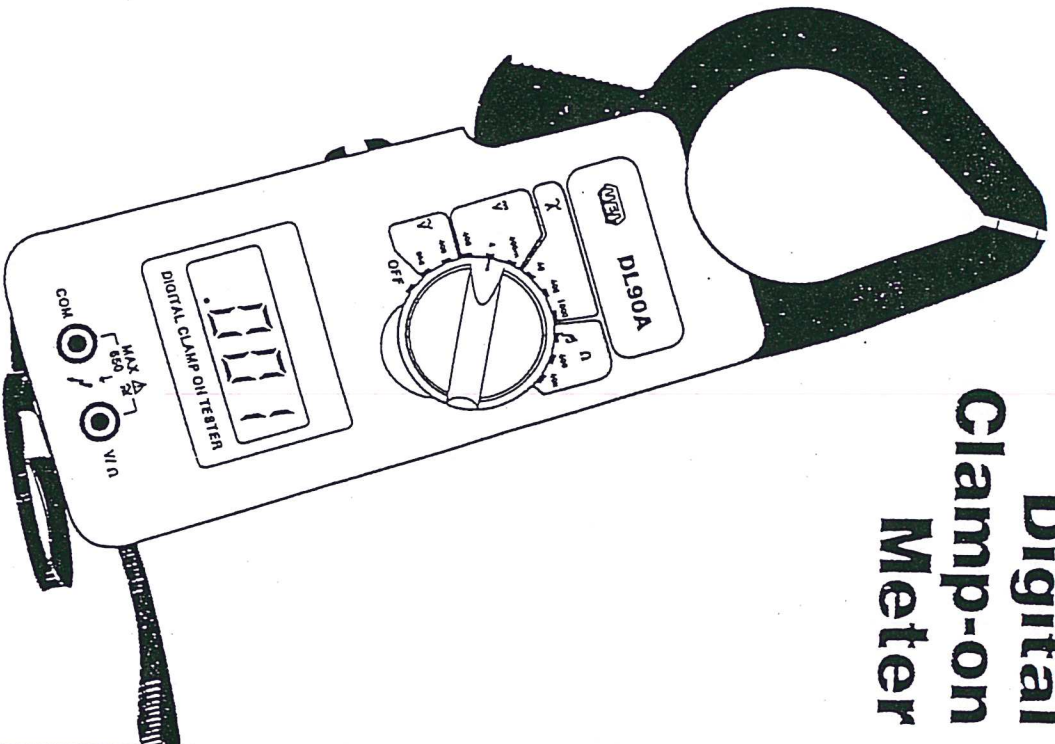




# DL90A Digital Clamp-on Meter



**OPERATING - INSTRUMENTS**

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ON 97005

1.


# DL90A OPERATING INSTRUCTIONS

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**WARNING:** OBSERVE ALL SAFETY PRECAUTIONS WHEN MEASURING HIGH CURRENTS AND VOLTAGES. TURN OFF POWER TO THE CIRCUIT UNDER TEST, SET THE DL90A CONTROLS, CONNECT THE TEST LEADS TO THE DL90A AND THEN TO THE CIRCUIT UNDER TEST. REAPPLY POWER.

The DL90A is a precision electrical test instrument. Please take this opportunity to read these instructions and familiarize yourself with the DL90A, its features, and operations.

### **FEATURES**

- Ruggedized to withstand a 10ft drop
- Meets UL 1244 and IEC348
- Easy-to-read, 3 3/4 digit LCD display
- Low battery indication: "LOBAT" on LCD display
- Data hold: "DATA HOLD" displayed on LCD when activated
- Tear drop jaw design
- 19mm standardized input jack spacing to accommodate the TA1K temperature adapter
- Measures up to 1000 AC amps
- Peak hold for all ranges
- Continuity buzzer on  ohm range

3.

## **SPECIFICATIONS**

### **Ranges:**

AC Amps: 0-40, 400, 1000A  
DC Volts: 0-400mV, 4V, 400V  
AC Volts: 0-400, 650V  
Ohms: 0-400, 40K .w/continuity beeper

### **Accuracy:**

(Reference conditions of 18° to 28°C)  
AC Amps:  $\pm 1.5\%$  of reading,  $\pm 4$  digits  
DC Volts:  $\pm 0.8\%$  of reading,  $\pm 1$  digit  
AC Volts:  $\pm 1.2\%$  of reading,  $\pm 4$  digits  
Ohms:  $\pm 1\%$  of reading,  $\pm 2$  digits

### **General:**

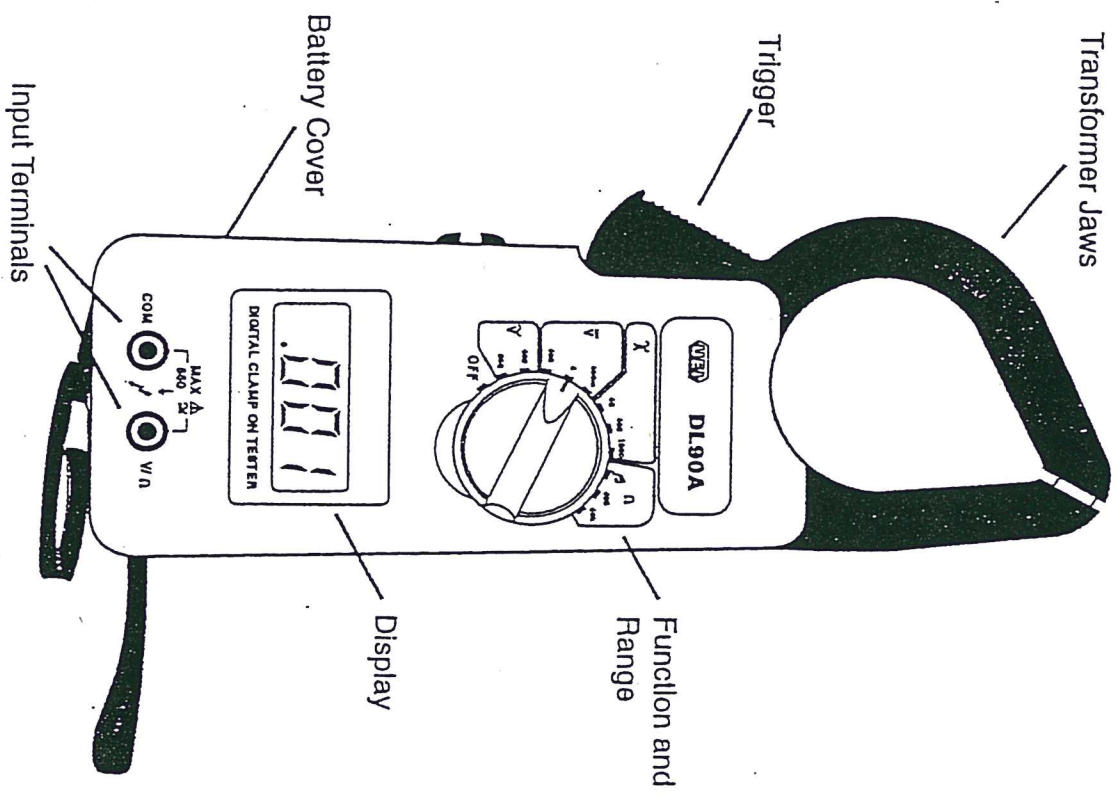
Jaw Opening: 1 1/2 inches  
Display: 3 3/4 digit LCD  
Sampling Time: 0.4 seconds  
Operating Temp.: 0°C to 50°C (32°F to 122°F)  
Operating Humidity: 80% max RH  
Power Supply: 9 volt battery (NEDA 1604)  
Battery Life: Approx. 200 hours of continuous use

**SEE FIGURE 1. (PAGE 6)**

- 1. Transformer Jaws:**  
Designed to pick up the AC current flowing through the conductor.
- 2. Trigger:**  
Press the lever to open the transformer jaws. When the pressure on the lever is released the jaws will close again.
- 3. Display:**  
3 3/4 digits, decimal points, "LO BAT" and "-" marks are displayed on the LCD display.
- 4. Input Terminal:**  
The black test lead is always connected to the "COM" input jack and the red test lead is always connected to the "V" input jack when measuring ACV, DCV, and OHMS.
- 5. Dropproof Wrist Strap:**  
Prevents the instrument from slipping off the hand while in use.
- 6. Function, and Range:**  
Rotary switch is used to select the measurement range and function of the signal under test.
- 7. Data Hold:**  
Hold display reading for all functions and ranges.
- 8. Battery Compartment:**  
Remove screws for battery replacement.
- 9. Peak Hold:**  
Test the start up current of motors and relays, test for voltage spikes over periods of time.

5.

**FIGURE 1.**



## **PRECAUTIONS/PREPARATIONS FOR MEASUREMENTS**

1. Ensure that the 9 volt battery is connected correctly to its snap terminal and placed in the battery compartment.
2. Ensure that the PEAK HOLD switch is in the "OFF" position.
3. Ensure that the DATA HOLD switch is in the "OFF" position.
4. Select the correct Function and Range.
5. Install the test leads in the proper input jacks (if testing ACV, DCV or OHMS).
6. Select the proper measurement range by starting at the largest anticipated value (for instance, 650 V) and progressively selecting lower ranges until the measurement falls within the proper range.
7. Remove the test leads from the circuit under test when changing the measurement range.
8. Operate the instrument only in the ambient temperature range of 0-50°C (32-122°F) and less than 80% relative humidity.
9. Do not exceed the maximum rated voltage of each range and input terminal.
10. Always switch the power to its "OFF" position when the instrument is not in use. Remove the battery if the instrument is not to be used for a long period of time.

7.

## MEASURING PROCEDURE

### DC Voltage Measurement

**WARNING:** To avoid the risk of electrical shock, instrument damage and/or equipment damage input voltages must not exceed 400 volts DC. Do not attempt to take any unknown voltage measurements.

1. Connect Black test lead into "COM" input jack.
2. Connect RED test lead into V/ $\Omega$  input jack.
3. Set the rotary switch to the desired position.
4. Connect test lead probes into circuit under test. The maximum DC voltage the DL90A can measure is 400 volts.

### AC Voltage Measurement

**WARNING:** To avoid the risk of electrical shock, instrument damage and/or equipment damage input voltages must not exceed 650 volts AC. Do not attempt to take any unknown voltage measurements.

1. Connect Black test lead into "COM" input jack.
2. Connect RED test lead into V/ $\Omega$  input jack.
3. Set the rotary switch to the desired position.
4. Connect test lead probes into circuit under test.

### Resistance Measurement

**CAUTION:** Turn test circuit power off and discharge all capacitors before attempting in-circuit resistance measurements.

1. Connect Black test lead into "COM" input jack.
2. Connect red test lead into V/ $\Omega$  input jack.
3. Set the rotary switch to the desired position.
4. Connect test lead probes into circuit under test or across unknown resistor. The maximum resistance the DL90A can measure is 40K ohms.



### **AC Current Measurement**

**CAUTION:** The instrument is overload protected up to 1000 ACA for up to one minute. Do not attempt to make any unknown current measurements. Do not exceed the maximum current that can be measured on each range.

1. Make sure that the "DATA HOLD" switch is not on.
2. Be sure the "PEAK HOLD" switch is not on.
3. Determine the highest anticipated ampere (40, 400, 1000A) on the range scale and position the rotary switch.
4. Press the trigger to open the transformer jaws and clamp around one conductor only. It is impossible to make measurements when two or three conductors are clamped around at the same time.

### **Data Hold Feature**

1. When the "DATA HOLD" switch is on it will hold the readings on all functions and ranges.

### **Peak Measurement**

1. Be sure the "DATA HOLD" switch is not on.
2. Turn the equipment to be measured off.
3. With the "PEAK HOLD" switch in the "OFF" position, set the rotary switch on the DL90A to the desired range.
4. Clamp the DL90A around the single wire to be measured, or attach test leads to equipment to be measured.
5. Set the "PEAK HOLD" switch to the "ON" position.
6. Apply power to the equipment being measured.
7. Read the peak value indicated on the LCD.

## BATTERY REPLACEMENT

**WARNING:** Before attempting to replace the battery, first disconnect the test leads from the circuit, then disconnect the test leads from the instrument.

1. When the left corner of the LCD display shows "LOBAT", approximately 20% of the battery life remains. It is necessary to replace the battery. Accurate measurements may still be made for several hours after the "LOBAT" appears.
2. Remove test leads.
3. Remove screws from the battery cover (10) lift away from the instrument and remove the battery.
4. Replace with 9V battery and reinstall the cover.

<b>Accessories</b>	<b>Stock No.</b>
Alligator clips .....	AAC
Battery 9V (NEDA #1604) .....	AB9
Carrying Case .....	AC81
Line Splitter .....	ALS1
Test Leads .....	ATL50
Temperature Adaptor .....	TA1K

## RETURNING FOR REPAIR

Before returning your instrument for repair, please make a quick check to insure the failure is not due to one of the following:

1. Low or dead batteries
2. Open test lead(s) or temperature probe.