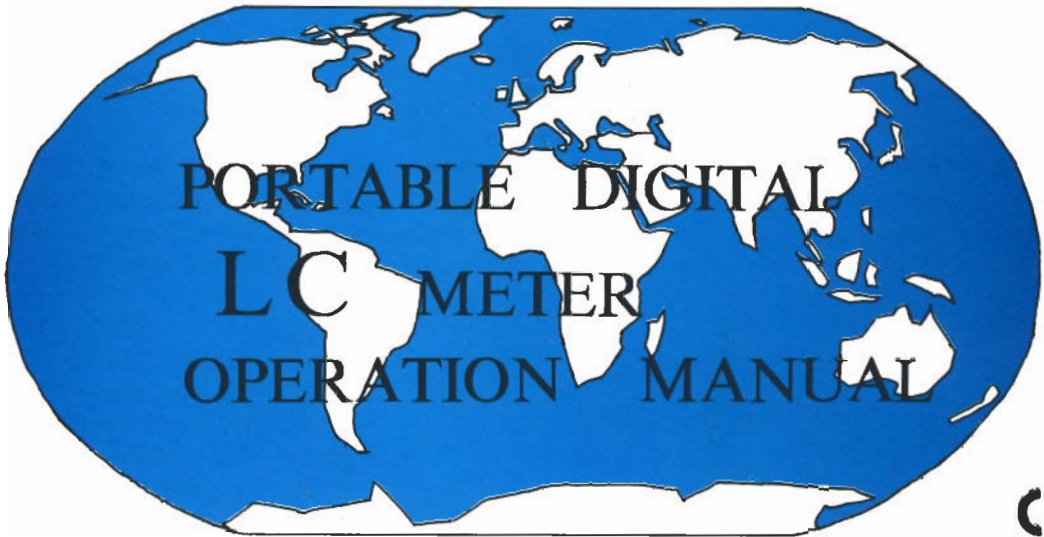


# PORTABLE DIGITAL LC METER OPERATION MANUAL

CE

## 1. GENERAL

### 1.1 INTRODUCTION

This Digital LC Meter gives a direct reading of inductance and capacitance on a 3 1/2 digits LCD display. Six ranges from 1pF to 200μF and four ranges from 1μH to 2H give precision readings, which includes virtually all inductance and capacitance used in electronic engineering laboratory, production, service shops and schools. Its battery operation, light weight, and small size make it a truly portable instrument.

### 1.2 FEATURES

* 21mm LCD display provided. MAX. indication 1999.
* 6 Ranges from 2nF to 200μF.
* 4 Ranges from 2mH to 2H.
* High accuracy in measuring.
* Zero automatic.

* Dual — Slope integration A/D converter.
* Overload indication of " 1 ".
* Safety designed test probe.
* Size: 31.5mm x 91mm x 189mm ( H x W x L).
* Weight: 300 g ( including battery ).

## 2. 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%.

## 2.1 GENERAL

| | |
|---|---|
| POWER SUPPLY | 9V battery NEDA 1604 or 6F22 006P |
| LOW BATTERY INDICATION | "  " appears on the display |
| FUSE PROTECTION | 100mA/250V |
| ZERO ADJUSTMENT | Automatic ( except 2nF range, typically have 0 — 3pf circuit stray capacitance) |
| OPERATING TEMPERATURE | 0°C to 40°C ( 32°F to 104°F) |
| STORAGE TEMPERATURE | – 10°C to 50°C ( 14°F to 122°F) |

## 2.2 ELECTRICAL SPECIFICATIONS

| L ( inductance ) | | | | |
|---|---|---|---|---|
| Range | Resolution | Accuracy | Test Frequency | Current through inductance under test |
| 2mH | 1μH | ± 2% of full scale ± 1 digit | 900Hz | 150μA |
| 20mH | 10μH | ± 2% of full scale ± 1 digit | 900Hz | 150μA |
| 200mH | 100μH | ± 2% of full scale ± 1 digit | 900Hz | 150μA |
| 2H | 1mH | ± 5% of full scale ± 1 digit | 900Hz | 150μA |

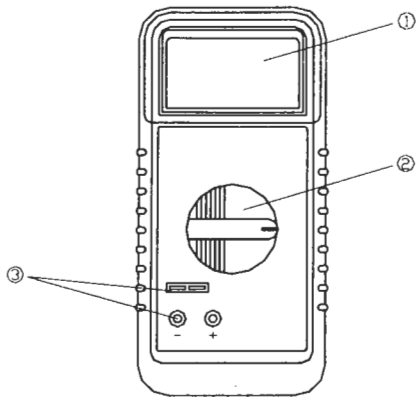
| C (Capacitance) | | | | |
|---|---|---|---|---|
| Range | Resolution | Accuracy | Test Frequency | Voltage across Capacitance under test |
| 2nF | 1pF | ± 1% of full scale ± 1 digit | 900Hz | 150mV |
| 20nF | 10pF | ± 1% of full scale ± 1 digit | 900Hz | 150mV |
| 200nF | 100pF | ± 1% of full scale ± 1 digit | 900Hz | 150mV |
| 2μF | 1000pF | ± 2% of full scale ± 1 digit | 900Hz | 150mV |
| 20μF | 0.01μF | ± 2% of full scale ± 1 digit | 90Hz | 150mV |
| 200μF | 0.1μF | ± 2% of full scale ± 1 digit | 90Hz | 15mV |

Temperature coefficient:

Inductance: Range 2mH, 20mH, 200mH 0.2% / ℃. Range 2H 0.5% / ℃.

Capacitance: Range 2nF, 20nF, 200nF 0.1% / ℃. Range 2μF, 20μF, 200μF 0.2% / ℃.

## 3. FRONT PANEL




1. LCD DISPLAY
2. ROTARY SWITCH
3. INPUT JACKS

## 4 OPERATING INSTRUCTION

### 4.1 CAUTION BEFORE MEASUREMENT

1. Be sure that batteries are correctly placed in the battery case and connected to the battery snap.
2. Observe polarity when connecting polarized capacitors.
3. Full discharge any capacitors.
4. Never apply voltage to the test jacks, serious damage may result.

### 4.2 CONSIDERATION

1. This LC meter is intended for measuring the capacitance value of a capacitor and the inductance value of an inductor. It is not intended for determining the " Q " factor . As the measuring frequency is only 900Hz, this meter is not suitable for measuring inductors which are used in the high frequency circuit. In such a case, misleading readings may be obtained.
2. When measuring components within circuit that circuit must be switched off and de - energized before connecting the test leads.

3. Instruments used in dusty environments should be stripped and cleaned periodically.
4. Do not leave the instrument exposed to direct heat from the sun for long periods.
5. Before removing the battery and fuse, ensure the instrument is disconnected from any circuit and the ROTARY switch is in the OFF position.
6. For all measurements, should connect the BLACK test lead into " – " terminal and the RED test lead into " + " terminal.

4.3 INDUCTANCE ( L) MEASUREMENT PROCEDURE

1. Select the range switch for the maximum expected inductance.
2. Conncet the alligator clips to the inductor leads or insert leads of the inductor into meter's measuring socket.
3. Read the display. The measuring value is direct reading and the electrical unit ( mH, H ) is indicated.
4. When only the figure " 1 " is displayed, it indicates overrange situation and the higher range has to be selected.

5. If the display indicates one of more reading zeros, shift to the next lower range scale to improve the resolution of the measurement.

4.4 CAPACITANCE (C) MEASURING PROCEDURE

1. Select the range switch for the maximum expected capacitance.
2. Connect the alligator clips to capacitor leads or insert leads of the capacitor into meter's measuring socket.
3. Read the display. The measuring value is direct reading and the electrical unit ( nF, μF ) is indicated.
4. When only the figure " 1 " is displayed, it indicates overrange situation and the higher range has to be selected.
5. If the display indicates one of more reading zeros, shift to the next lower range scale to improve the resolution of the measurement.

## 5. MAINTENANCE

* When the left corner of LCD display show "  ". It is necessary to replace the battery. Remove screws on the back cover and open the case . Replace the exhausted battery with a new one .
* Fuse rarely need replacement and blow almost always as a result of the operator's error. Open the case as mentioned above, and then take the PCB out from the front cover. Replace the blown fuse with same ratings ( 100mA/250V quick acting ).
* 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 back cover is in place and fastened fully .
* Do not use abrasives or solvents on the meter , use a damp cloth and mild detergent only .

## 6 ACCESSORIES

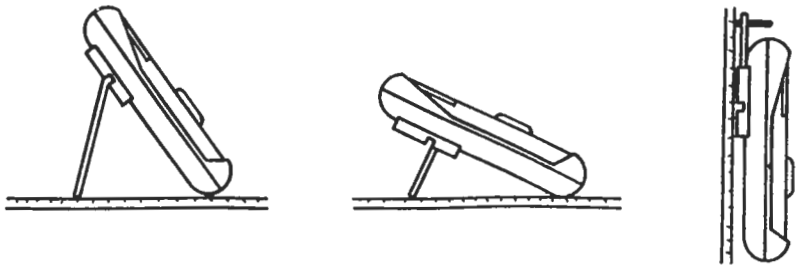
### 6.1 SUPPLIED WITH THE CAPACITANCE METER

| | |
|---|---|
| Test Leads | HYTL — 6243 |
| Battery | 9V NEDA 1604 or 6F22 006p |
| Operating Manual | |
| Holster | |

### 6.2 HOW TO USE THE HOLSTER

The holster is used to protect the meter and to make the measurement more comfortable, It comes with two stands installed together. The figure shows how to use the holster to:

1. Support the meter with a standard angle.
2. Support the meter with a small angle using the little stand.
3. Hang the meter on the wall using the little stand. Take the little stand off from the back side of the large stand and insert it into holes located upper on the holster.



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