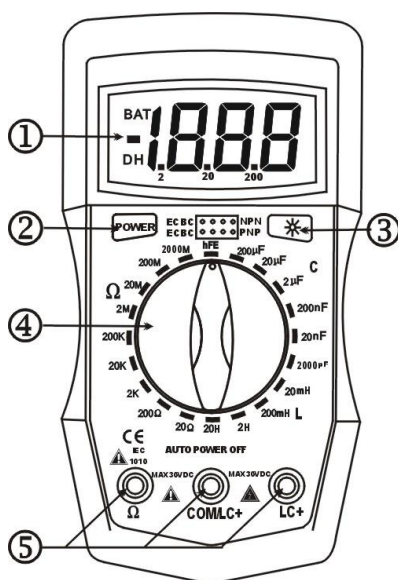


# 3 1/2 DIGITAL LCR MULTIMETER OPERATION MANUAL

## 1. INTRODUCTION

This instrument is a compact, battery operated, handheld, with safety protector, streamline 3 1/2 digital LCR multimeter designed for use by technicians, servicemen, students, and hobbyists who required an instrument that is accurate, reliable, and always ready for use. The Dual-slope-A/D converter uses C-MOS technology for auto-zeroing, polarity selection and over-range indication. Full overload protection is provided. It is powered by a standard 9V transistor radio type battery. please read this manual that describes various useful message before using the multimeter.

## 2. Panel Layout



- ① LCD Display: 3½ digits, character 16MM high
- ② POWER Switch
- ③ Back Light Button Switch: Press this button to switch on back light. If the dark circumstance light makes the reading difficult when measuring, the light will be automatically turned off in 5 seconds. Press again to switch it on again. If the battery is in weak power, the light will be dimmed.
- ④ Rotary Switch: use this switch to select functions and ranges.
- ⑤ Ω Input Jack, LCX Input Jack, COM/LCX Input Jack

## 2. SPECIFICATION

### 2.1 GENERAL CHARACTERISTICS

- 2.1.1 3 1/2 digit big LCD max. Indication 1999.
- 2.1.2 Auto-Zero & Auto-Polarity.
- 2.1.3 Over-range: indication of "1" or "-1".
- 2.1.4 Low battery indication: "BAT"
- 2.1.5 Power supply: 9V Zinc-carbon battery.
- 2.1.6 Safety standards:

The meter is up to the standards of IEC1010 Double Insulation, Pollution Degree 2, overvoltage Category III.

- 2.1.7 Temperature for guaranteed accuracy: 23°C ± 5°C

- 2.1.8 Temperature range:
  - Operating: 0°C to 40 °C
  - Storage: -20°C to 60 °C
- 2.1.9 Humidity range:
  - Operating: max 75%RH
  - Storage: max 80%RH
- 2.1.10 Size: 143x75x32mm
- 2.1.11 Weight: Approx 200g (including battery).
- 2.1.12 Accessories:
 

operation manual	1 piece
test leads	1 pair
packing box	1 piece

## 2.2 MEASUREMENT SPECIFICATION

Environment:

Temperature: 23°C ± 5°C relative humidity: max .75%

### 2.2.1 Resistance

Range	Accuracy	Resolution
20 Ω	±(1.2% of rdg + 30dgts)	0.01 Ω
200 Ω	±(1.0% of rdg + 20dgts)	0.1 Ω
2k Ω		1 Ω
20k Ω		10 Ω
200k Ω		100 Ω
2M Ω	±(2.0% of rdg + 20dgts)	1k Ω
20M Ω	±(2.0% of rdg + 25dgts)	10k Ω
200M Ω	±(5.0% of rdg + 25dgts)	100k Ω
2000M Ω	±(10.0% of rdg + 35dgts)	1M Ω

Overload protection: 250V DC/250Vrms AC for all range.

### 2.2.2 Capacitance

Range	Accuracy	Resolution
2000pF	±(2.5% of rdg + 30dgts)	1pF
20nF	±(2.5% of rdg + 25dgts)	10pF
200nF	±(2.5% of rdg + 30dgts)	100pF
2 μ F	±(2.5% of rdg + 30dgts)	1nF
20 μ F		10nF
200 μ F	±(7.0% of rdg + 50dgts)	0.1 μ F


### 2.2.3 Inductance

Range	Frequency	Accuracy	Resolution
20mH	100Hz	±(2.5% of rdg + 25dgts)	0.01mH
200mH	100Hz		0.1mH
2H	100Hz		1mH
20H	100Hz		10mH

### 2.2.4 Transistor hFE test


Range	Description	Test Condition
hFE	Display read approx .hFE value (0~1000) of transistor under test (NPN and PNP Type)	Bast Current approx 10 μ A Vce approx 3V

### 2.2.5 BACK LIGHT

Press “” button , the back light will light.

## 3. HOW TO USE THE MULTIMETER

### PRELIMINARY NOTE

1. If the battery is weak. a “” sign will appear on display.  
The battery should be replaced
2. The FUNCTION switch should be set to the range to be used before operation.

### 3.1 Resistance Measurement

- (1) Connect the BLACK test lead to the “COM” jack and the RED test lead to the “ $\Omega$ ” jack .
- (2) Set the FUNCTION switch to “OHM ” range to be used
- (3) Connect the test leads across the resistance under measurement.

Note:

1. If the resistance value being measured exceeds the maximum value of the range selected, an over-range indication will be displayed (“1 or -1”). Select a higher range .For resistance of approximately 1 Megohm and above . the meter may take a few seconds to stabilize . This is normal for high resistance readings.
2. when the input is not connected , input is open circuit .the sign “1 or -1” will be displayed for the overrange condition .  
when checking in-circuit resistance, be sure the circuit under test has all power removed and that all capacitors are fully discharged .

### 3.2 Capacitance Measurement

- (1) Set the FUNCTION switch to “C” to be used.
- (2) Insert the capacitor under measurement into the two jacks “LC-” and “LC+” at the left on the front panel.

Note :

1. Capacitors should be discharged before being inserted into the test-jacks.
2. When testing large capacitance, note that there will be a certain time lag before the final indication.
3. Do not connect an external voltage or charged capacitor (especially larger capacitors) to measuring terminals.

### 3.3 Inductance Measurement

- (1) Set the FUNCTION switch to “L” to be used.
- (2) Insert the inductor under measurement into the two jacks “LC-” and “LC+” at the left on the front panel.


### 3.4 Transistor hFE Test

- (1) Set the FUNCTION switch the “hFE” range.
- (2) Determine whether the transistor is NPN or PNP and locate the Emitter. Base and collector leads. Insert the leads into the proper holes in the socket on the front panel.
- 3) The display will read the approximated hFE value at the test condition Base current 10uA , Vce 3V.

## 4. MAINTENANCE

- (1) The multimeter is a precision electronic device. Do not tamper with the circuitry . to avoid damage :  
A : Never connect a source of voltage under the condition of resistance measurement .  
B : Never operate the meter unless the cover is in place and fully closed .  
C : Battery replacement should be done after the test

leads have been disconnected and POWER IS OFF .

- (2) turn off the power if the meter is not in use , removed the battery if the meter will be free for long period .
- (3) If a sign “” appear on the display, open the compartment cover, remove the spent battery and replace it with a battery of the same type.
- (4) Contact with the maintenance service center of our company if you have trouble.
- (5) Please take out the battery when not using for a long time.

**Above picture and content just for your reference. Please be subject to the actual products if anything different or updated. Please pardon for not informing in advance.**