

# DESCRIPTION

## INTRODUCTION

Capacitor and inductor usage in electronic equipment is increasing rapidly and the forecast is for this growth to continue. Much of the increased use of capacitors and inductors is due to the increasing use of the integrated circuit. ICs are taking the place of discrete components in many electronic circuits. Due to their construction however, capacitors and inductors are not contained within the IC package, but rather remain as discrete components. To meet the requirements of today's IC circuits, capacitors and inductors have tighter tolerance and more critical parameters than ever before. As the use of ICs increases, so will the useage of capacitor and inductors. The need to measure critical capacitor parameters and inductor value and quality is greater than ever before. Without a good reliable measurement of these parameters, circuit troubleshooting becomes difficult. The Sencore LC75, "Z METER II" meets this challenge. It allows capacitors to be checked for value, ESR and leakage at their rated working voltage. The LC75 also provides a patented dielectric absorption test. Inductors are readily tested for value with a patented inductance test and for quality with a patented ringing test. The LC75 is a complete capacitor and inductor analyzer.

## FEATURES

The Sencore LC75 "Z METER II" is a complete, triple-patented capacitor and inductor analyzer designed to locate defective components. Simply hook the capacitor or inductor to the test leads, push a button and the LC75 automatically displays the value on the digital readout.

In addition to checking value, the LC75 also checks capacitors for leakage at their rated working voltage from 3 to 600 volts. A flashing LED serves as a safety reminder when the voltage applied to the capacitor is 50 volts or higher. A patented dielectric absorption test and patent pending ESR test round out the capacitor checks, making the LC75 a unique, thorough capacitor analyzer.

The Sencore patented inductance value test provides a fast, reliable check of true inductance. The Sencore patented ringing test checks coils, deflection yokes, and other non-iron core transformers with an accurate good/bad check. Six impedance matching settings match coils from 10uH to 10H to the test circuit. Good coils show 10 or more ringing cycles on the digital display while bad coils show less than 10.

A LEAD ZERO control allows you to balance out test lead capacity and inductance for accurate readings of very small capacitors and coils. The "Z METER II" is protected against voltages accidentally being applied to the test leads by a front panel, replaceable fuse and a special relay inside the instrument.

## SPECIFICATIONS

### DIGITAL READOUT

TYPE: .5", 7 segment LED.

ACCURACY: Function accuracy  $\pm$  resolution error.

RESOLUTION: 3 significant digits  $\pm$  counts on 3rd digit (3½ digits on capacitors of 100,000 uF to 200,000 uF).

AUTORANGING: Fully automatic decimal placement. One or two place holding zeros added as needed (does not affect accuracy) to provide standard value readouts of uF, pF, uH, or mH.

RANGE INDICATORS: Type: LED Operation: Controlled by the autoranging circuits.

### CAPACITORS (Out-of-Circuit):

Dynamic test of capacity value determined by measuring one RC time constant when capacitor is charged to +5V through:

10 Megohms for 0-9000pF.

10 Kilohms for 9000pF-90uF.

Values greater than 90 uF are charged with a constant current of 60 mA.

ACCURACY:  $\pm$  1% of reading + resolution error,  $\pm$  1pF.  $\pm$  5% of reading + resolution error for caps over 1000uF.

RANGE: 1.0 pF to 199,900 uF in 10 automatically selected ranges.

### CAPACITOR LEAKAGE

ACCURACY:  $\pm$  5% + resolution error.

RANGES: 0 to 99.9 uA and 0 to 9.99K uA in two switch selectable ranges.

VOLTAGES: 12 selectable DC voltages from 3 VDC to 10 VDC filtered, and from 15 VDC to 600 VDC, non-filtered. Available at test leads only when LEAKAGE pushbutton is depressed. Capacitor is automatically discharged when button is released.

### CAPACITOR ESR (Patent Pending)

ACCURACY:  $\pm$  5% + resolution error.

RANGE: 0.10 Ohm to 999 Ohms in 3 automatically selected ranges.

CAPACITOR RANGE: 1uF minimum value for specified accuracy.

### CAPACITOR D/A

Dynamic test of capacitor dielectric absorption determined by the difference in capacity value measured before and after applying rated voltage to the capacitor. (US patent 4,267,503)

APPLIED VOLTAGE: Same as capacitor leakage.

ACCURACY: Same as capacitor value accuracy.

## **INDUCTANCE (In- or Out-of-Circuit)**

Dynamic test of inductance value determined by measuring the EMF caused by a constantly varying current through the coil under test (US patent 4,258,315). Current rates are: 10 mA/usec - 0 to 90 uH. 1 mA/usec - 90 to 900 uH. .1mA/usec - 900 uH to 9 mH. .01 mA/usec - 9 to 90 mH. 1 uA/usec - 90 to 900 mH. .1 uA/usec - 900 to 9,990 mH.

ACCURACY:  $\pm 2\%$  of reading + resolution error.  
RANGES: 1.0 uH to 9,990 mH in 6 automatically selected ranges.

## **RINGING TEST**

Dynamic test of inductor quality determined by counting the number of cycles the inductor rings before reaching a preset damping point after a given exciting pulse has been applied. (US patent 3,990,002)

EXCITING PULSE AMPLITUDE: Approximately 7 Volts peak.

ACCURACY:  $\pm 1$  count from readings of 8 to 13.

## **ACCESSORIES (Supplied)**

39G143 Test Leads  
39G144 Test Lead Adaptor  
39G154 Test Button Hold Down Rod  
64G37 Test Lead Mounting Clip  
68G34 Allen Wrench  
44G20 Spare 1 Amp Slo-Blo Fuse

## **ACCESSORIES (Optional)**

39G85 Touch Test Probe  
FC221 Field Calibrator  
SCR224 SCR/TRIAC Test Accessory

## **GENERAL**

TEMPERATURE RANGES (Typical): Calibrated at 70 degrees F. Rated accuracy range: 50-90 degrees F.  
Operating range: 32-130 degrees F.  
power: 105-130 VAC, 60 Hz, 25 Watts.  
TEST LEAD INPUT: Fuse protected with in-line 1 Amp 3AG Slo-Blo fuse.  
size: 6" x 9" x 11.5" (15.24cm x 22.86 x 29.1cm)  
WEIGHT: 7.75 lbs. (3.56 Kg).

Specifications subject to change without notice.