

# Yashwantrao Chavan College of Science Karad

## AUTOCOMPUTE LCR-Q METER 4910

# Aplab



### About

Aplab Model 4910 is a microprocessor based digital Auto compute LCR-Q Meter that meets today's laboratory requirements, in the production line and the quality assurance area. It features fully auto ranging and automatic operation over a wide range of measurements

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# AUTO COMPUTE LCR-Q METER 4910



Model 4910 measures inductance, capacitance, resistance and quality factor to a basic accuracy of  $\pm 0.25\%$  of the reading for values up to 2000H, 2000 $\mu$ F, 2M ohm and Q factor up to 99 respectively. Measurements can be made at a frequency of 100Hz or 1KHz as required and either the series equivalent or parallelequivalent component values can be displayed. Range selection is fully automatic and the LCR-Q meter automatically discriminates between inductors and capacitors. An internal DC bias voltage of 2 volts can be selected for use when testing electrolytic capacitors. The operating system of the LCR-Q meter provides assistance to the user in selecting the measurement mode and frequency to give best accuracy. If a wrong selection is done, then the corresponding LED flashes prompting the user to change to the proper setting. Loss of basic accuracy due to poor quality of component and operation beyond the operating range of the instrument is also indicated by flashing the measurement units LEDs. Measurements up to 9999H, 9999 $\mu$ F and 100M ohm can be made at a degraded accuracy.

Model 4910 incorporates 4 terminal measuring technique which reduces errors due to electro-magnetic coupling of leads as well as reducing residual inductance and stray capacitance.

The integral test jig accepts most common diameters of component leads. Radial and axial components can be directly plugged into the jaws. The insertion of components with particularly flexible leads will be aided by the operation of the release buttons situated directly below the insert jaws. The unit comes with remote cord to simplify testing of small/large size components.

## Features

- Microprocessor-based Fully Automatic L, C, R & Q Measurement
- Auto ranging with Direct Digital Readout
- 4 Terminal Measurement Technique
- Series or Parallel Equivalent Measurement
- Special Input Terminal for Fast and Easy Insertion and Removal of Test Component
- Economical and Portable
- Self-Test Facility

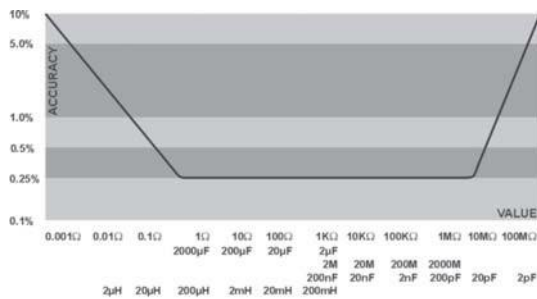
## Technical Specifications

<b>Variables Measured</b>	: L, C, R & Q.
<b>Measurement Modes</b>	: Series or parallel equivalent.
<b>Measurement Frequency</b>	: User selectable 100Hz or 1KHz.
<b>Accuracy of Measurement</b>	: $\pm 0.25\%$ .
<b>Maximum Voltage across Component</b>	: 0.285V rms (0.8V p-p) (approx.).
<b>Measuring Update Rate</b>	: 2 per second.
<b>Maximum Time for Valid Reading after User Connecting Components</b>	: 1 second.
<b>Display</b>	: 4 digit, 7 segment 12.5 mm high, bright LED.
<b>Connection to Component Under Test</b>	: 4 terminal integral test jig.
<b>Measurement Ranges</b>	
Inductance	: 0.1 $\mu$ H to 9999H.
Capacitance	: 0.1pF to 9999 $\mu$ F.
Resistance	: 0.001 ohm to 100M ohm.
Quality Factor	: 0.1 to 99.
<b>Resolution</b>	
Inductance	: 0.1 $\mu$ H.
Capacitance	: 0.1pF.
Resistance	: 0.001 ohm.
Quality Factor	: 0.01.

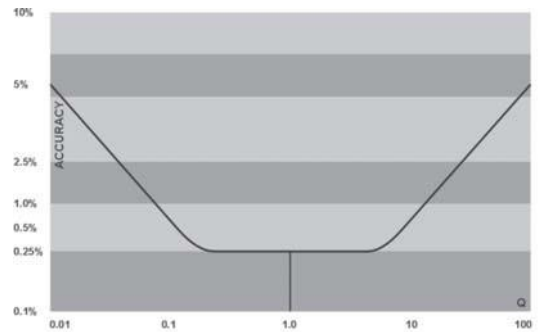
### Measurement Ranges for Basic Accuracy (Refer Graph Below)

Measurement Frequency	100Hz	1KHz
Range of Inductance (Q > 10)	: 1H-2000H (series mode)	: 200 $\mu$ H-1H (series mode)
Range of Capacitance (Q > 10)	: 1 $\mu$ F-2000 $\mu$ F (series mode)	: 200pF-1 $\mu$ F (parallel mode)
Range of Resistance (Q < 0.1)	: 1 ohm-2M ohm (upto 10K series mode & >10K parallel mode)	
Range of Quality Factor	: 0.25 to 4.	
<b>Input Protection</b>	: The input is protected against connection of capacitors of upto 10mF charged to not more than 50V.	
<b>Fuse</b>	: 250mA.	
<b>Operating Temp. Range</b>	: 0° to 40°C.	
<b>Power</b>	: 230V AC $\pm 10\%$ , 47-53Hz. Optional 115V AC $\pm 10\%$ , 57-63Hz.	
<b>Dimensions</b>	: 430 (W) x 150 (H) x 335 (D) mm (approx.).	
<b>Weight</b>	: 4 Kg. (approx.).	
<b>Standard</b>	: Instruction Manual - 1 No.	
<b>Accessories</b>	: Remote Probe - 1 No. Mains Cord - 1 No.	

**NOTE** : For variation of accuracy of 'Q' with the value of Q & variation of accuracy of Q for 100Hz & 1KHz. Please refer graphs.



GRAPH SHOWING VALUATION OF ACCURACY WITH READING FOR 100Hz AND 1KHz Q>10 FOR L & C Q<0.1 FOR R



GRAPH SHOWING THE VARIATION OF Q ACCURACY WITH VALUE OF Q