

Model

KEW 66

Instructions for Multimeter Models KEW-66

General

The instrument is a highly sensitive tester with a rotary selector switch and is suitable for a wide range of measurements. The meter used on this unit features a very rugged construction. Voltage sensitivity is 20,000 ohms per volt both AC and DC. Voltage measurements are made from 1 V and 1,000 V AC and DC, current 50 μ A to 500 mA DC and resistance to 5 M Ω , full scale. The instrument is also provided with a mirror scale to ensure higher accuracy of readings, a printed circuit and a built-in overload protection device.

2. How to use

a. DC Voltage Measurements

Insert the red test lead into the COM (+) jack on the upper right and the black test lead into the DC V- Ω -A jack. Set the switch to one of the desired voltage ranges marked on the panel face. Then, connect the tip of the test leads to the circuit to be measured.

Note: Make sure that the red test lead be connected to the positive (+) side of the circuit under test and the black test lead to the negative (-) side respectively, A voltage value to be measured should be read on each range of the middle "D.C.V, mA" scale marked in black. Read an indicated value on the scale where the position of the pointer corresponds to that reflected on the mirror scale. If the voltage to be measured is unknown, switch the pointer to the highest range first and take a reading on the most suitable scale range after checking an approximate value to be measured.

b. AC Voltage Measurements

Insert the red test lead into the COM (+) jack and the black test lead into the AC-V jack.

Warning: As the switch contact is built in the AC-V terminal it is necessary to use the regular test lead supplied after inserting it fully into the AC-V jack. Proper measurements would not be possible by using any other test leads which do not operate the built-in switch contact.

Set the rotary selector switch to a range desired and connect the test leads to the circuit. When measuring AC voltage, disregard the polarity of the test lead. For measurement of 25 V AC range and above use the middle, black scale common to the DC voltage measurement, the second and third lower red scales for 1 V AC and 2.5 V AC respectively and the red scale direct below the mirror for 5 V AC and 10 V AC. As described in the DC voltage measurement, select the most suitable scale range after making sure of an approximate value to be measured in the highest range.

c. DC Current Measurements

As is the case with DC voltage measurements, insert the red test lead into the COM (+) jack and the black test lead into the DC V- Ω -A jack. Then, set the selector switch to a range desired. When measurements are made, the test leads should be connected in series with the circuit under test. Also, connect the red test lead to the positive (+) side of the circuit and the black test lead to the negative (-) side respectively. Unknown currents are measured in a similar manner to that previously described in the voltage measurements. Read the middle "D.C. V, mA" scale marked in black and common to DC voltage measurement.

Note: The KEW-66 can be used as 350 mV voltmeter at the 50 μ A range. The calibration chart below will give correct values measured.

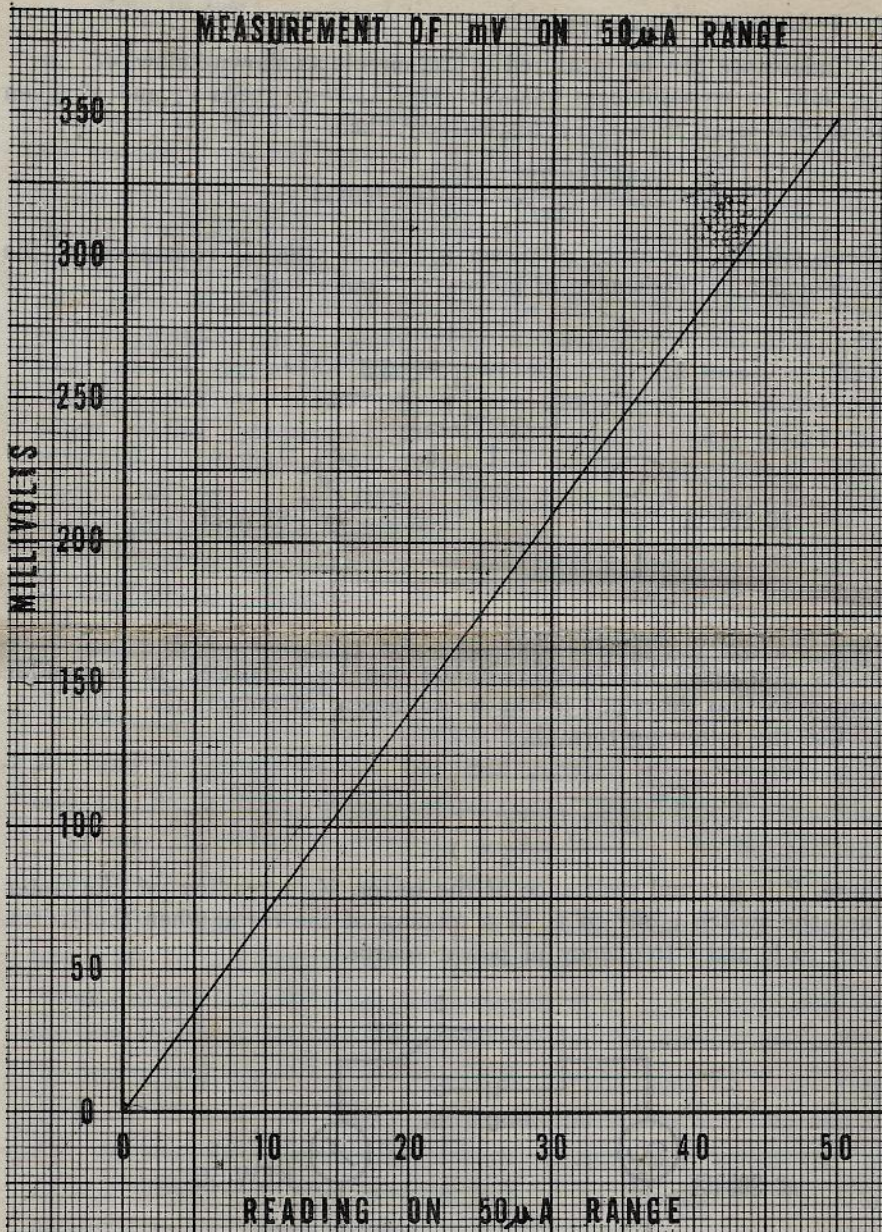
d. Resistance Measurements

Insert the red test lead into the COM (+) jack and the black test lead into the DC V- Ω -A jack. Then, set the switch to one of the ranges desired. Join the tips of the test leads together and adjust the "0. ADJ" control on the lower right hand corner until the meter pointer reads zero correctly. Resistance readings are obtained on the top scale. Take the shorted test leads apart, connect them to the resistor under test and read the resistance scale. Multiply the reading by the factor corresponding to each measuring range. If the zero position is not adjusted properly with the "0. ADJ" control, replace the batteries. Battery replacement can be made simply by removing the screw located on the back of the case.

e. Decibel Measurements

Measurements are made in a similar manner to that described in the 10 V AC measurement. A direct reading is given on the bottom scale.

MEASUREMENT OF mV ON 50 μ A RANGE



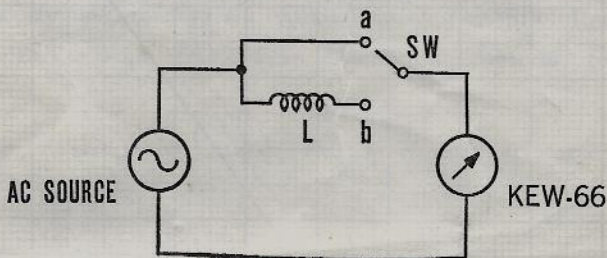
f. Inductance Measurement

Inductance can be measured in the circuit as shown below:—

Now, let us assume as follows: The KEW-66 reads V_a and V_b when the switch is set to a and b respectively, then,

$$L = \frac{\sqrt{(V_a/V_b)^2 R^2 - (R+r)^2}}{2\pi f} \text{ (Henry)}$$

where, f is the frequency of power source, R internal resistance of the tester and r DC resistance of inductance under test.



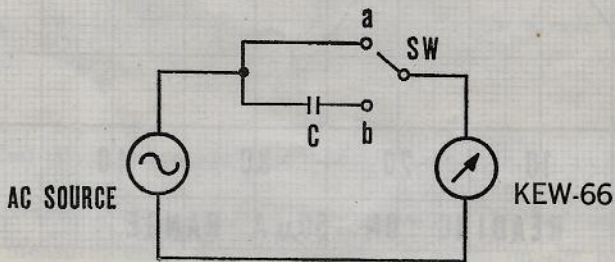
g. Capacitance Measurement

As illustrated below, capacitance can be measured in a similar manner to that described in the measurement of inductance.

Use the following formula:

$$C = \frac{1}{2\pi f R \sqrt{\left(\frac{V_a}{V_b}\right)^2 - 1}} \text{ (Farad)}$$

where, R is internal resistance of the tester, V_a a reading of the tester when the switch is set to a , V_b a reading of the tester when the switch is set to b , and f frequency of power source.



1. Specifications

- DC Voltage :** 0-1-2.5-5-10-25-50-100-250-500-1,000 V (20,000Ω/V)
AC Voltage : 0-1-2.5-5-10-25-50-100-250-500-1,000 V (20,000 Ω/V)
DC Current : 0-50 μA-2.5 mA-25 mA-500 mA
Resistance : 0-5K-50K-500K-5MΩ
Decibel : -20 ~ +22 dB (0 dB=1mW, 600Ω)
Accuracy : DC Voltage 3% of full scale
 AC Voltage 3% of full scale (above 5V range)
 5% of full scale (1V, 2.5V range)
 DC Current 3% of full scale
 Resistance 3% of scale length
Internal Battery : 2×UM-3 Battery
Dimensions : 185 mm (7⁹/₃₂")×100 mm(4"^r)×44 mm(1⁴⁷/₆₄"^r)
Weight : Approx. 400 g (0.9 lbs)

