

## EXERCISE NO. 1

### RESISTOR COLOR CODE

**Objectives:** The objectives of this laboratory exercise are to become familiar with the resistor color code and to use a digital multimeter (DMM) to measure resistance.

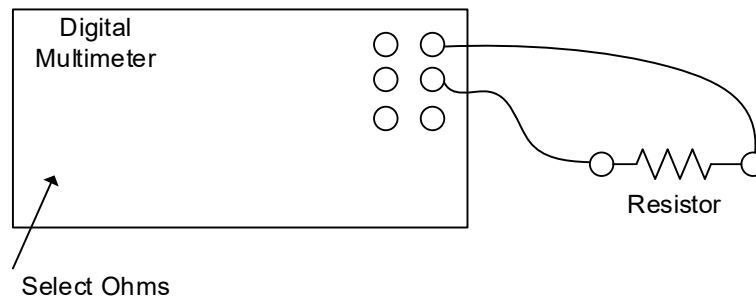
**Procedure:**

1. Determine the color codes of the resistors listed below. Locate one resistor in your parts kit for each value.

RESISTANCE (OHMS)

10  $\Omega$   
100  $\Omega$   
220  $\Omega$   
330  $\Omega$   
1 k $\Omega$   
5.1 k $\Omega$   
10 k $\Omega$   
100 k $\Omega$   
1 M $\Omega$

2. Based on the tolerance, create a table with the nominal resistance value in the first column, the color code in the second column (if the colors are readable), the minimum resistance in the third column and the maximum resistance in the fourth column. Reserve a fifth column for the measured resistance values. The resistors from the ELENCO kit are 1%.
3. Use the DMM to measure the resistance of each of the resistors located in step 1, according to the lab instructor's directions. Remember not to hold the resistor leads with your fingers when taking measurements, since this may affect the measured values. Use the most sensitive resistance scale possible in each case to obtain the most accurate measured values.
4. Record the measured resistance values in column five of your table, and check to make sure that the measured values lie within the expected tolerance ranges. If a measured resistance lies outside of the expected range, check the color code of the resistor and check to make sure that the DMM procedure has been followed properly. It is very rare that a commercial resistor has a resistance value outside of the specified tolerance range.
5. Data Analysis: None



The connection diagram for this lab is very simple. Use this setup for all resistor values: