

LABORATORY WORK # 2

APPLICATIONS OF RESISTORS, OHM'S LAW, KIRCHHOFF'S LAWS

Aims: investigate properties of resistors; get skills of the scheme mounting. Compare experimental results with theoretical foundations about resistors, Ohm's and Kirchhoff's laws.

PREPARATION TO LAB WORK

- 1 Learn the information about resistors, Ohm's law and Kirchhoff's laws.
- 2 Show resistors i-v-characteristic.
- 3 Consider experiments' schemes and draw them with application of Scheme Design System. Fill in the tables theoretically.
- 4 Answer the questions below in written form.
 - a. What is a resistor?
 - b. Explain resistor color codes.
 - c. Define Ohm's law.
 - d. Explain parallel and serial connection of resistors.
 - e. Write formulas for star-to-delta and delta-to-star transformations.
 - f. Explain Kirchhoff's current and voltage laws.
 - g. Explain current and voltage division rules.
 - h. Explain how to measure the value of resistance with multimeter.
 - i. Explain how to measure voltage with multimeter.

Experiment 2A. Plug the Y-0016/002 module. Make the circuit connections as in figure3.3

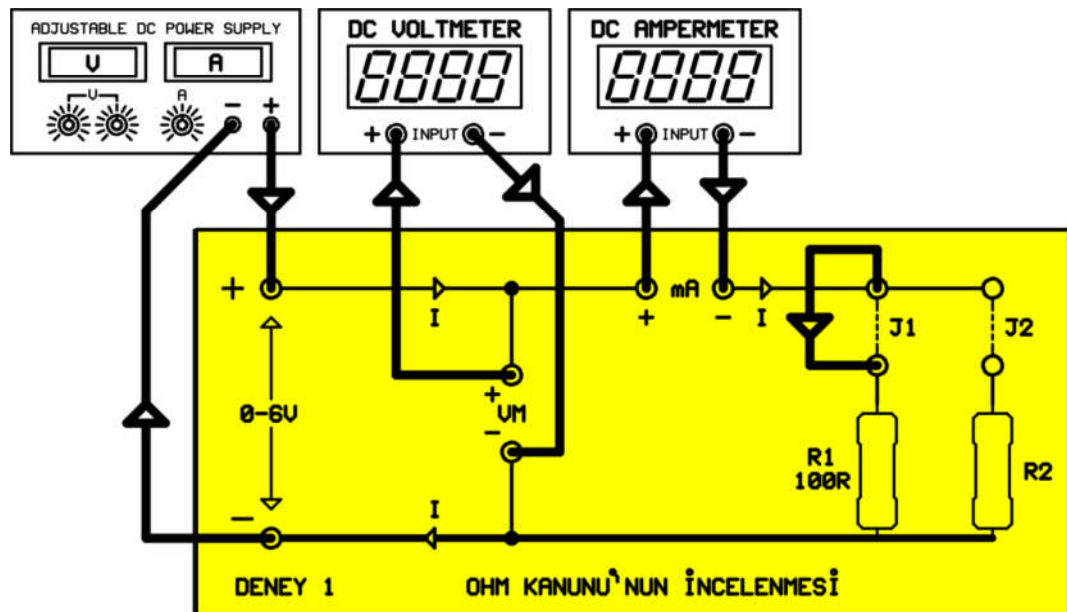


Figure 3.3 (ohm kanununun incelenmesi: examination of ohm's law, deney: experiment)
Adjust the power supply's voltage potentiometers to minimum (to left), and the current potentiometers to maximum (to right). Apply the power to the circuit.

- 1- Adjust the voltage to the values in figure 3.4 and write the current values at every stage respectively. Calculate Resistances

Number	V(volt)	I(mA)	R=V/I
1	1,0		
2	2,0		
3	3,3		
4	4,0		
5	5,0		
6	6,0		

Figure 3.4

- 2- Cut the power of circuit and open the J1 short circuit. This time short circuit J2. Calculate the mathematical value of R2 resistance. (figure 3.5)

Number	V(volt)	I(mA)	R=V/I
1	1,0		
2	2,0		
3	3,3		
4	4,0		
5	5,0		
6	6,0		

Figure 3.5