

### Lab 34-2: Resistance of Wires

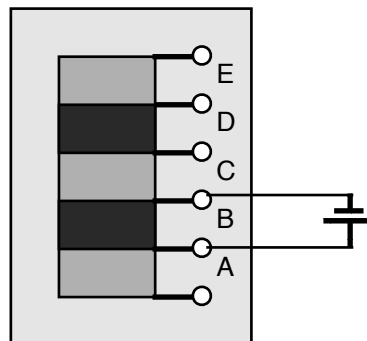
- Purpose:**
- To determine the resistance in five different wires using Ohm's Law.
  - To determine the effect of length, diameter and material on the resistance of a wire.

**Materials:**

- 1 power supply                  2 wires                  2 alligator clips                  1 spool board

**Procedure:**

- Set up the power supply, meters and spools as shown.
- For each spool, apply a voltage and record the resulting current. (The diagram shows the hookup for spool "B.")
- On the back of the spool thing there is a description of each spool. Record each spool's description. (Note that the numbers for the diameter of the spool are the gauge number of the wire. Larger numbers mean thinner wire.)
- Calculate the resistance of each spool of wire.



**Data:**

Spool	Voltage (V)	Current (A)	Resistance ( $\Omega$ )	Description of spool		
				Length (m)	Thickness (g)	Material
A						
B						
C						
D						
E						

**Questions:**

- Does the length of a wire affect its resistance? If so, how?
- Does the thickness of a wire affect its resistance? If so, how?
- If two wires have the same dimensions, but one is made of copper and the other of nickel-silver, which one will have more resistance?