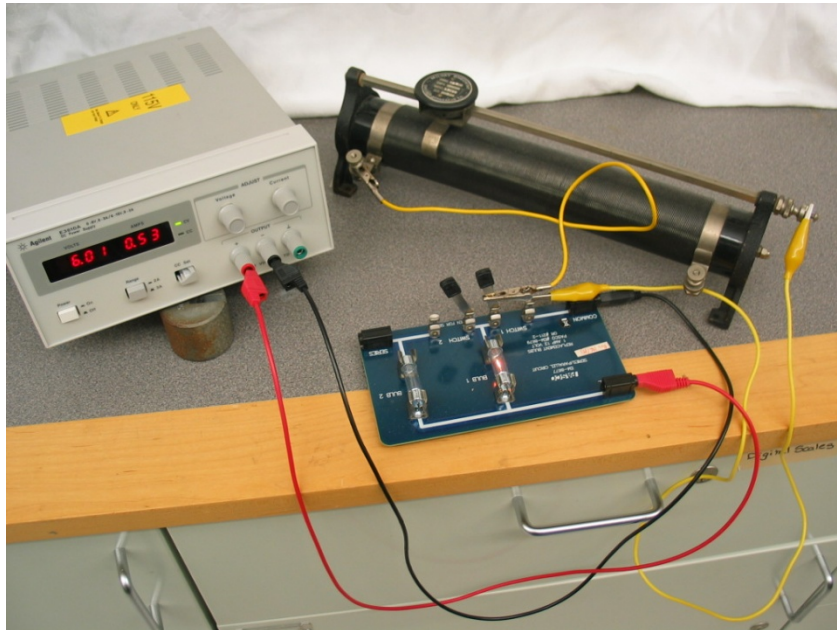


Changing Resistance at Constant Voltage



Purpose: To show that increasing the length of wire that the current must go thru, without changing voltage, results in less current thru the circuit.

Location: Room 146; circuit board & 27 ohm rheostat, shelf M3; DC power supply, shelves C2/C3

Set the power supply voltage to 6 volts. With both switches open on the EM-8677 Series/Parallel Circuit Board, connect the + and – terminals of an HP/Agilent power supply to the “common” and “parallel” connections on the circuit board. Using alligator clips (shelf B2) connect the rheostat across the left and top-right terminals of switch 1 as shown. Move the rheostat slide to the zero (left-most) setting. The bulb should glow brightly. Now move the rheostat slide to the right, increasing the length of wire the current must go thru. The bulb should dim, showing that increasing the length of wire decreases the current in the circuit even though the voltage applied to the circuit stays the same. This is equivalent saying that the resistance of the circuit increases as the length of wire increases.