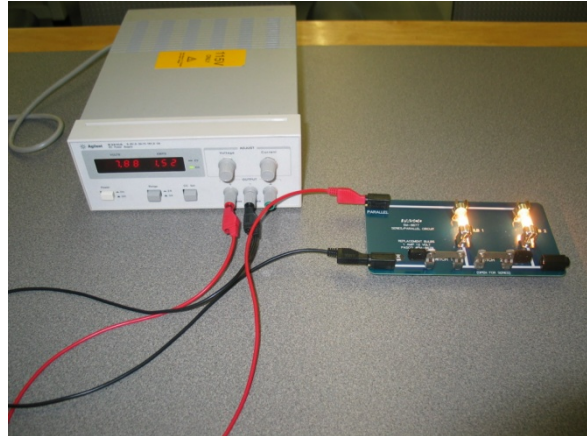
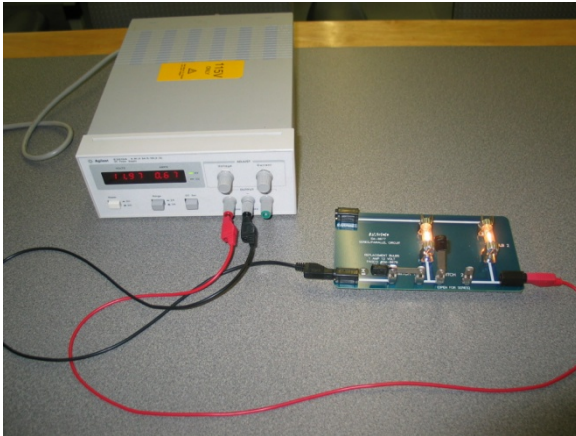


## Light Bulbs in Series & Parallel



**Purpose:** To show the differences between connecting light bulbs (resistors) in series and parallel

**Location:** Room 146; EM-8677 circuit board, shelf M3; HP power supply on C3

Place the series/parallel circuit board on the table with both switches open. Connect the - terminal of the power supply to common port, and connect the + terminal to the series port (left picture). Turn the power supply on and set the voltage to about 10 volts. (Do not exceed twelve volts!) Close switch one and observe the brightness of the light bulbs. One bulb may carefully be removed from this circuit to show that the other bulb will go out.

Disconnect the banana plug from the series port and decrease the voltage below 8 volts. Close switch two and connect the + terminal to the parallel port (right picture). Increase the current until the voltage is about 8 volts. Notice how much brighter the light bulbs are in parallel, with less voltage from the power supply. This implies that there is more current thru (and hence greater voltage drop across) each bulb in the parallel circuit, even though the power supply is set at a lower output voltage. One bulb may carefully be removed from this circuit to show that the other bulb will still stay lit.