Stony Brook University

Department of Physics and Astronomy
Introductory Physics Laboratories

Power Supplies

MW 122A

The MW 122A is a regulated DC power supply capable of delivering up to 2 Amps at 3-12 Volts, dc.

To operate it:

i) Ensure that the unit is plugged in AC power. Connect the unit to your circuit using a red lead for + and a black lead for - (this terminal will be at "signal ground", close to AC ground).
ii) Set your desired voltage.
iii) Toggle the power switch in the upper left to turn the unit On and Off.
iV) The set voltage is approximate. Meaure the output with a voltmeter or oscilloscope.

Lambda LL-902-0V

The Lambda LL-902 is a regulated DC power supply capable of delivering 0-0.65 Amps at 0-20 Volts, dc. It has separate controls for the Voltage setting and current limit.

To operate it as a fixed voltage supply:

i) Ensure that the unit is plugged in AC power. With no wires connected, set the meter switch to Voltage and set all three dials (Coarse voltage control on left, fine volage control in center and Current Limit on the right) to full counter-clockwise.

ii) Turn the unit on with the toggle switch in the upper left.. Turn the Current Limit dial fully clockwise . Use the Coarse voltage control to set the desired voltage, as displayed on the meter.
iii) Leaving the dials alone, turn the power supply off. Connect the unit to your circuit using a red lead for + and a black lead for - (this terminal will be at "signal ground", close to AC ground).
iv) Turn the power supply on. If you have a more precise measurement of the voltage in your circuit you many "tune" the voltage to the desired value with the Coarse and Fine voltage controls.

To operate it as a variable voltage supply:

i) Ensure that the unit is plugged in AC power. With no wires connected, set the meter switch to Voltage and set all three dials (Coarse voltage control, fine voltage control and Current Limit) to full counter-clockwise.
ii) Connect the unit to your circuit using a red lead for + and a black lead for - (this terminal will be at "signal ground", close to AC ground).
iii) Turn the power supply on. Turn the Current Limit dial fully clockwise.
ii) Use the voltage control knobs to set the desired voltages.

Power Supplies

RSR HY 3005

The RSR HY 3005 is a regulated DC power supply capable of delivering 0-5 Amps and 0-30 Volts, dc. It has separate controls, both Fine and Coarse, for Voltage and Current settings.

To operate this power supply:

i) Ensure that the unit is plugged in AC power.
ii) When you connect to your circuit, use a red lead for + and a black lead for - (this terminal will be at "signal ground", close to AC ground).
iii) When you turn the power supply on using the orange button, there should be display of the current (left meter), voltage (right meter) and a red LED light indicating constant current (C.C.) or constant voltage (C.V.) mode.

To set this power supply as a current source:

1. Before connecting the load, first turn all knobs fully counter-clockwise.
2. Next, short circuit the red and black terminals with a cable, and turn the "course" current and voltage knobs clockwise just a bit (e.g. quarter turn).
3. Disconnect the short circuit and adjust the voltage limit to a maximum voltage (~3.5Volts for the Mag Force 1 experiment).
4. Turn the current knobs fully counter-clockwise.

You are ready to connect the experimental apparatus. During the experiment the red light at the current knobs should be on. The voltage should always be less than the maximum you set. If the red light at the voltage knobs (C.V.) is on, there is an interruption of the electrical circuit (open or broken circuit).

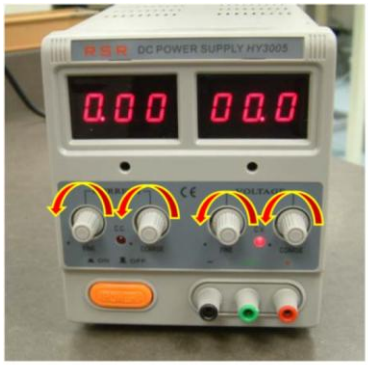


Figure 7

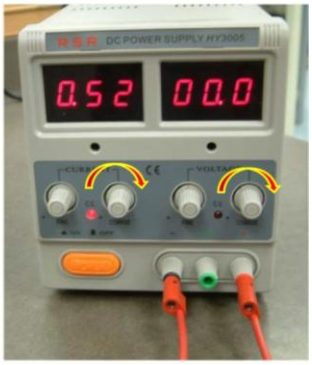
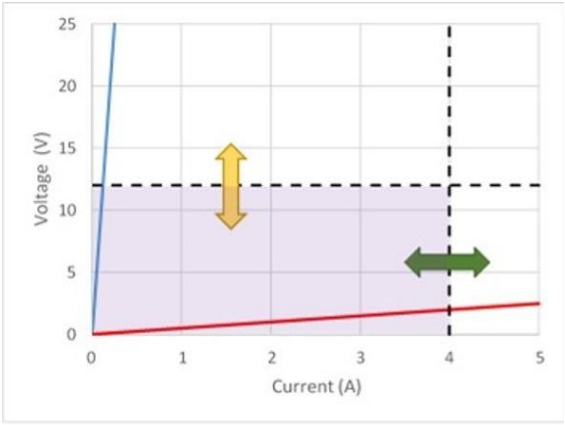


Figure 8

More details about the RSR HY 3005



The graph illustrates the effect of turning the knobs. The dashed lines are upper limits to the voltage and the current. Within the pink area every voltage and current is possible; voltage and current values outside of the pink area are not possible. Turning the "voltage" knobs adjusts the voltage limit (yellow arrow) and turning the "current" knobs adjusts the current limit (green arrow). If the load has high resistance (blue line) the voltage limit will be in effect and the current limit does not matter. In this case the power supply is a current source (because we can set the current). If the load has low resistance (red line), the current limit will be in effect and the voltage limit does not matter. In this case the power supply is a voltage source (because we can set the voltage). The red light between the knobs tells us in which of the two modes the power supply operates.

Power Supplies

Heath Built EUW-17

The EUW-17 "transistorized" power supply is a regulated DC power supply capable of providing 0-35 Vdc with 0.2 Amps maximum current. This device was commercially made by the Heath Electronics Company, which is famous (among a certain audience) for the HeathKit brand of sets from which many people learned electronics in the 1950's to '80's.

To operate this power supply:

i) Ensure that the unit is plugged in AC power.
ii) When you connect to your circuit, use a red lead for + and a black lead for - (this terminal will be at "signal ground", close to AC ground).
iii) Turn the power supply on using the red switch in the lower left of the front panel. Use the voltage control knob to vary the voltage.