

## PCC DC Power Supply Information

The power supply in the our lab contains three separate voltage sources. There is a 6V, 20V, and -20V source. All of these sources are variable so they can be adjusted from 0V to the maximum level. When the power supply is on, Line On is up and light is on, all three voltage sources are powered up. The front panel of the power supply is show in Figure 1.

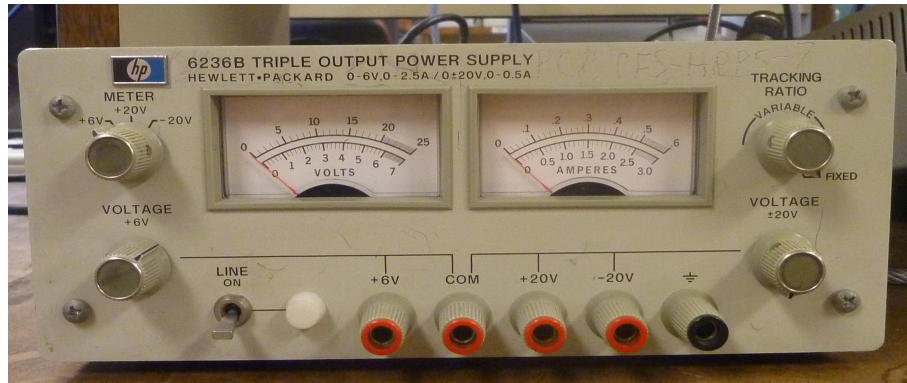


Figure 1: Front panel of lab power supply

### Metering

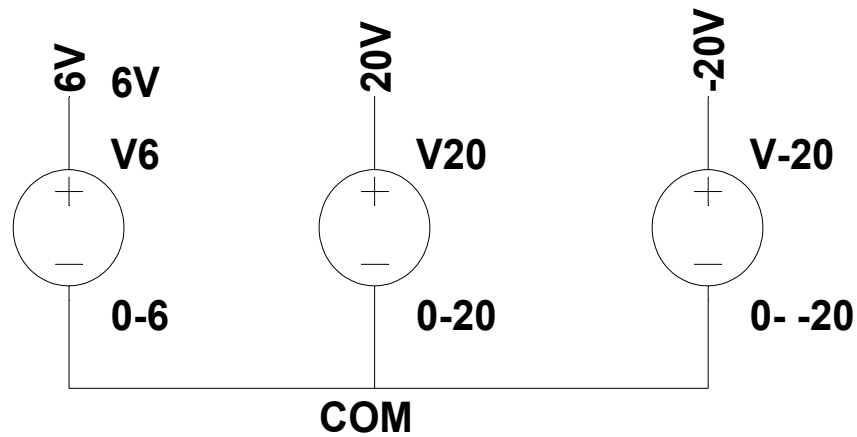
The power supply is equipped with two analog meters. These meters display voltage and current being produced by one of the three voltage sources. The meter on the left shows the voltage while the meter on the right displays output current. Note that the 20V and 6V sources are shown on different scales. This applies to both meters. The dial in the upper left corner of the supply, **METER**, is used to select which of the three voltage sources to display. The two voltage sources that are not being shown in the meter are still on and outputting whatever voltage they were previously set at. This analog meter should only be used for reference. The DMM should be used to definitively set the voltage source.

When turning on the meter pay special attention to the current meter. For most of our projects there will be very little current draw. If the current meter moves past the halfway point, you should turn off the power supply and check your circuit.

### Connections

There are 5 connectors on the front of the power supply. They are labeled 6V, COM, 20V, -20V, and GND. **COM** is the negative voltage source connection, **NOT GND**. GND serves as in internal connection to the GND wire in the cord. The 6V source is connected between 6V and COM. The 20V source is connected between 20V and COM. The -20V source is connected between -20V and COM. Figure 1 shows how the voltage sources are connected. Once again, notice that the negative side of the supply is connected to COM not GND. Generally it is not necessary to short COM and GND together, though it often doesn't make any difference in our experiments. Notice that the negative side of the -20V source is also connected to COM and the positive side of the source is labeled as -20V. This is for our reference. What this means is that the -20V terminal will be at a lower voltage than the common terminal, i.e. it will be negative relative to common.

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*Figure 2: Power Supply Voltage Source Configuration*

### *Setting Voltage Levels*

The 6V power supply is controlled by the dial in the lower left corner of the supply, VOLTAGE +6V. The 20V and -20V supply are controlled by the dial in the lower right corner of the supply, VOLTAGE +-20V. This dial sets the +20V supply to whatever is displayed on the 20V meter. It is adjusted from 0 to 20V. The TRACKING RATIO dial, upper right corner, controls the relationship between the magnitudes of the +20V and -20V supplies. If this dial is turned completely to the right and clicked into position then the +20V and -20V magnitude are exactly the same. Turning the tracking ratio to the left, or down, reduces the -20V magnitude. This can be summed up by the following equation:

$$|-20V \text{ Supply}| \leq |+20V \text{ Supply}|.$$

Generally when using +- supplies both supplies have the same magnitude. For this reason it is best to generally keep the inside knob “locked” into position.