

EE105 Lab Experiments

Agilent E3631A DC Power Supply Tutorial

1 Introduction

The DC power supply is simple, so this tutorial only contains a few bulleted notes and a simple example. There is an image of the front panel interface in Figure 1.

2 Interface Notes

- The power supply can output independent values on the +6V and ± 25 V outputs. However, the digital display can only show one value at a time.
- For displaying the ± 25 V outputs, press the +25 V or -25 V buttons, respectively. For the 6 V output, press the +6 V button.
- The “Track” button is used to set the -25 V output as a proportion of the +25 V output setting. If the +25 V output is set to 9 V, then the -25 V output will be -9 V when the word “Track” appears on the bottom of the display. Track can be turned on by pressing and holding the “Track” button until “Track” appears on the display. This feature can be turned off by pressing the “Track” button again.
- The power supply can be switched into a current-source mode. However, for these labs, you will only use the voltage mode; so be sure the word “CV” appears on the right corner of the display when the output is on.
- The voltage and current limit can be set by using the following procedure: Press the “Display Limit” button. “LMT” should be shown on the bottom of the display. Now use the knob on the right to set the desired value. Toggle between setting voltage and current by pressing the “Voltage/Current” button. The digit that is blinking is the one being changed; to switch to a different digit, use the left and right arrow buttons below the knob. When the desired limit value is set, press the “Display Limit” button again. Note that the limit value is not always the output value (e.g. in the case of a short circuit).
- To temporarily turn off the DC output without turning off the equipment, press the “Output On/Off” button to display “Output Off” on the screen. Please remember to use this feature when making changes to your circuit connections. To turn on the DC output, press the “Output On/Off” button again.

3 Examples

Here are all of the steps necessary to set up +9 V and -9 V supply rails.

1. Turn on the power supply with the lower-left power button.
2. Press the +25 V button in the SELECT section and then press the “Display Limit” button to view the voltage setting for that output. Set the voltage limit to 9.00 V using the procedure mentioned above.

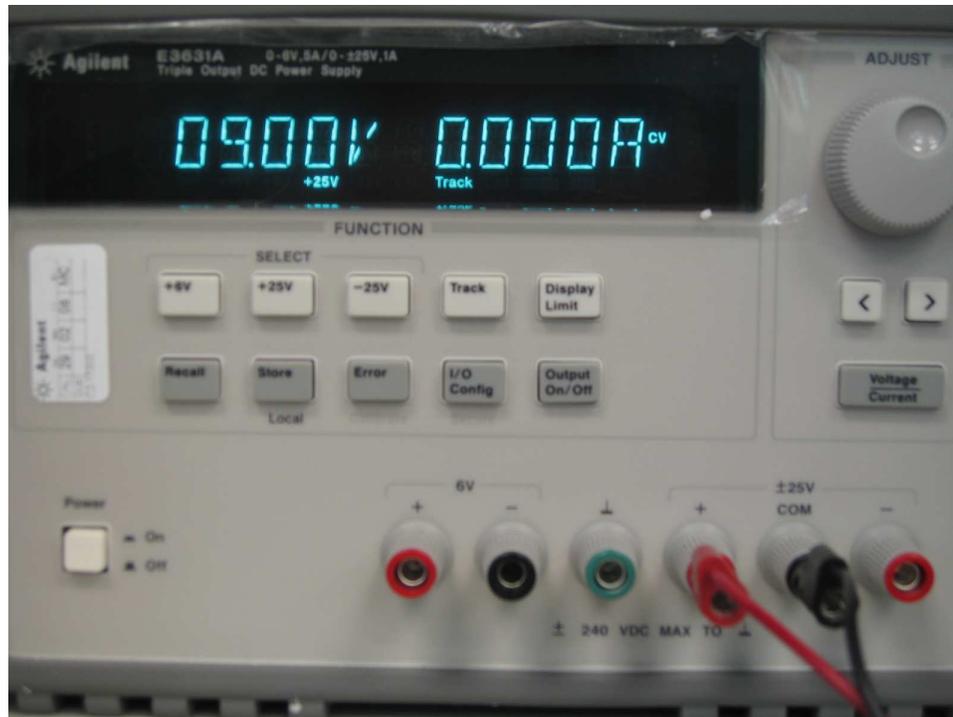


Figure 1: Agilent E3631A front panel.

3. Press the -25 V button in the SELECT section and then, if necessary, press the “Display Limit” button again to view the voltage setting for that output. Press down on the “Track” button until the word “Track” is shown on the bottom of the display and then verify that the voltage reads -9.00 V .
4. Connect cables to the $+25\text{ V}$ and -25 V output ports and then press the “Output On/Off” button to turn on the output if this was not done already.
5. Check to be sure the word “CV” appears on the right corner of the display for each 25 V output. If “CC” appears on the corner of the display instead of “CV” for any of them, then this means the respective DC output is acting as a current source. To correct for this, set the current limit to 1.00 A for the $\pm 25\text{ V}$ outputs. (Note that the lab experiments in this manual do not require the DC supply to output more than 1.00 A .)
6. **The power supply has a floating ground (the one labeled “COM”), so you can cascade outputs in series to reach higher voltages. The green output is earth-grounded.**