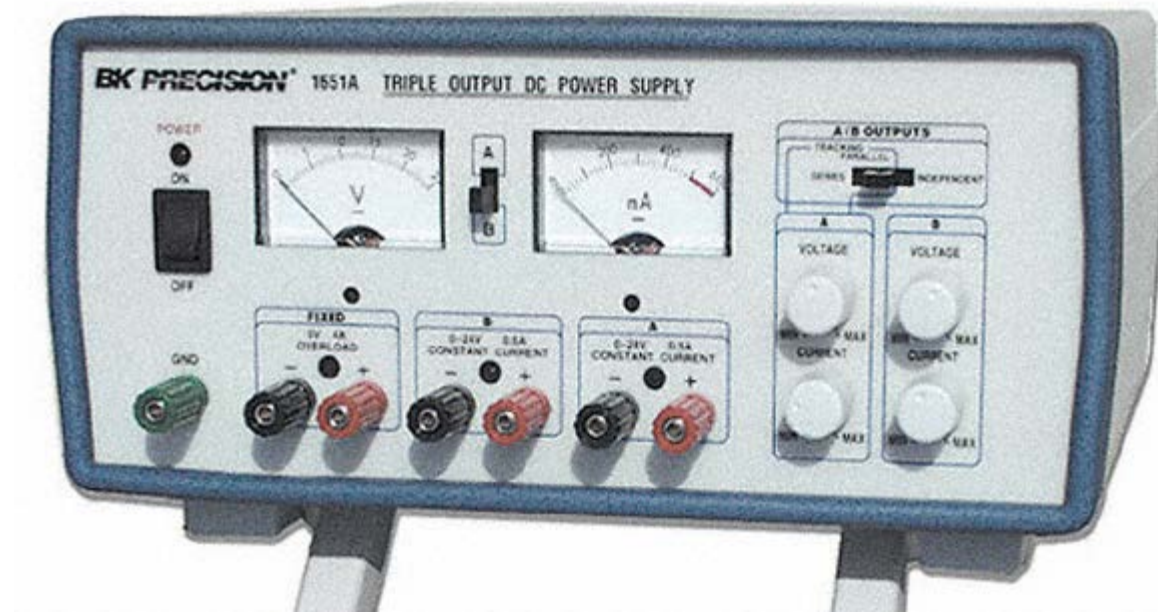


Quick Guide to the BK Precision 1651A Triple Output DC Power Supply

This power supply is capable of supplying DC power to circuits using three independent outputs.



To start using the power supply: plug it into the wall, and turn the POWER switch (left) to “1” (on). The red LED at upper left should light up.

Each of the three outputs has two terminals (red = +, black = -) along the bottom of the front panel:

“FIXED:” non-adjustable 5V output, capable of delivering up to 4A:

*The output voltage is fixed at 5V, and the current drawn is calculated from Ohm’s Law. But if the current exceeds 4A, a fuse may blow. (In reality the “OVERLOAD” light above the terminals will come on to signify the power supply has shut down to prevent damage, but it is good practice to never put yourself into a position where a protective feature has to activate in the first place!). Therefore, the *smallest* resistance you should connect across the “FIXED” terminals is $R = V/I = 5V / 4A = 1.25 \Omega$.*

“A:” variable supply capable of 0-24 V, and 0 – 0.5 A.

“B:” same specifications as “A.”

Note: the positions of the terminals and the adjustment knobs for “A” and “B” are reversed from what they should be – the “A” connectors are on the “inside” and the “B” connectors are on the outside.

Control of the variable outputs: Both the “A” and “B” outputs are controlled by knobs (on the lower right) labeled “VOLTAGE” and “CURRENT.” Essentially, the idea is that you set one knob (either voltage or current) more “strictly” and control the output with that one. If the voltage knob is set more

“strictly”, then the output voltage is controlled by the position of the voltage knob, and the current drawn comes from Ohm’s Law (“constant voltage” mode). If the current knob is set more “strictly,” then the current is fixed by the position of the current knob, and the voltage across the terminals comes from Ohm’s Law (“constant current” mode). In other words, each knob represents the “maximum allowable” value of voltage or current, respectively; either V or I will have its value set by the position of the knob, and the other will be a smaller value that fluctuates with the load resistance. But note that for a given set of knob positions, as the load resistance changes the source may change from “voltage controlled” to “current controlled” mode. When either supply is operating in “constant current” mode the red LED above the terminals lights up; if that light is off, the supply is operating in “constant voltage” mode.

Front Panel displays: You can read the (approximate) values of voltage and current being delivered using the meters on the front panel (voltage on left, current on right). Unfortunately, you can only view one at a time, so you must use the A/B switch between the meters to choose which one you are looking at. But to get accurate readings, you should use a multimeter, and use the front-panel displays only for rough values!

“TRACKING” switch (“A/B OUTPUTS”) at upper right corner:

“INDEPENDENT:” The A and B outputs operate separately and independently of one another.

“SERIES:” The A and B outputs are connected in series, with a single output (accessed via the “A” controls and the “extreme” terminals – B’s black and A’s red) that ranges from 0-48V, and 0-0.5A.

“PARALLEL:” The A and B outputs are connected in series, controlled via the “A” controls, as either a single supply (on “A”) that ranges from 0-24V, and 0-1A, or two 0-24V, 0-0.5A circuits that “track” each other and are controlled by a single set of knobs.

We generally will leave this switch on the “INDEPENDENT” setting.

“GND” terminal: We generally will not use this, since the chassis is already grounded through the third prong on the power cord.

The terminals at front will accept banana-type plugs, which are available in the bins.