

Triple Output DC Power Supply Safety Handout

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The engineering department owns four models of triple output DC power supplies: BK Precision 1660, BK Precision 1760, BK Precision 1760A, and Topward 6303D. Three of the models are three generations of the same BK Precision power supply; the Topward supply is also very similar to these in form and function. Proper understanding of the functioning of a DC power supply is essential for anyone who wants to operate one safely. Therefore, in addition to reading this handout, **please review the “Operating Instructions” section of a BK Precision power supply manual.**¹ You may borrow a copy of this manual from the EE/CE technician or download a copy from:

http://www.bkprecision.com/manual/1760A_manua.pdf

For quick reference, the most important points for safety are provided here as well. (Most of the following list is borrowed from the BK Precision manual.)

Safety guidelines for operating triple output DC power supplies:

- 1) Avoid contact with the heat sinks at the rear of the power supply**
The heat sinks become very hot during operation and can cause serious burns.
- 2) Always use an outlet with earth ground connected**
In order to safely ground the power supply, a 3-prong outlet receptacle (receptacle with earth ground) must be used.
- 3) Keep power supply off when making and breaking connections**
This will prevent inadvertent short circuits from occurring when you make connections. You don't want to short circuit a supply capable of delivering several amps of current.
- 4) Observe proper polarity**
In order to protect the circuit you are working with, remember to check the polarity of all connections before turning on the power supply.
- 5) Properly connect earth ground**
If possible, keep your circuit from floating by bonding earth ground to the circuit in the proper way. (For most circuits, bond earth ground to the negative power supply.)
- 6) When testing, start with low voltage and work your way up**
Start with the voltage and current knobs turned most of the way down, then turn them up slowly. If your circuit has problems in it, this testing method will prevent you from putting a lot of damaging current through your circuit before you can detect a problem.

¹ Alternatively, you may read the “Operation” section of a Topward power supply manual. Copies of the Topward manual are available on the shelf in Frey 266.