Using a Power Transformer/Voltage Stabilizer When Using Fluorescent Lights for Manuscript Photography

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The Hill Museum & Manuscript Library (HMML) is using continuous fluorescent lighting systems for manuscript photography at some of its project locations. The decision to use fluorescent lights is generally made if it is determined that the electrical power supply at a particular location is too unstable for the successful use of flash lighting units, which is HMML's usual practice. It is hoped that fluorescent lights, with their ballasted power supplies, will tend to have a more stable light output in fluctuating power situations.

To further enhance the stability of the power supply, HMML is supplying studios using fluorescent lights with a step-down voltage transformer that also provides voltage stabilization. The need for a step-down transformer is obvious—the fluorescent lights provided by HMML are designed for the American market and run on 110-volts AC. In places using the European standard of 220-volts, a transformer is needed to bring the voltage down to the American level.

Unlike a simple step-down transformer that simply reduces the voltage, the units supplied by HMML have a number of additional features:

- 800 Watt Maximum Capacity, heavy-duty continuous use transformer
- Converts 110/120 Volt up to 220/240 Volt OR Converts 220/240 Volt down to 110/120 Volt
- On/Off switch with indicator lamp, integrated automatic protection circuit
- Analog meter on front of unit measures exact input voltage
- Unit shuts off automatically when input voltage is out of range
- Unit resets automatically when input voltage is back in safe range
- 3 outlets on rear of unit (outlets accept 3 or 2 prong US plugs and 2 prong Euro/Asian plugs)
- Insulated power cord is hard wired with a European Shucko plug also good for Asian outlets
- Easy to carry with attached handle, heavy-duty metal casing, fuse protected

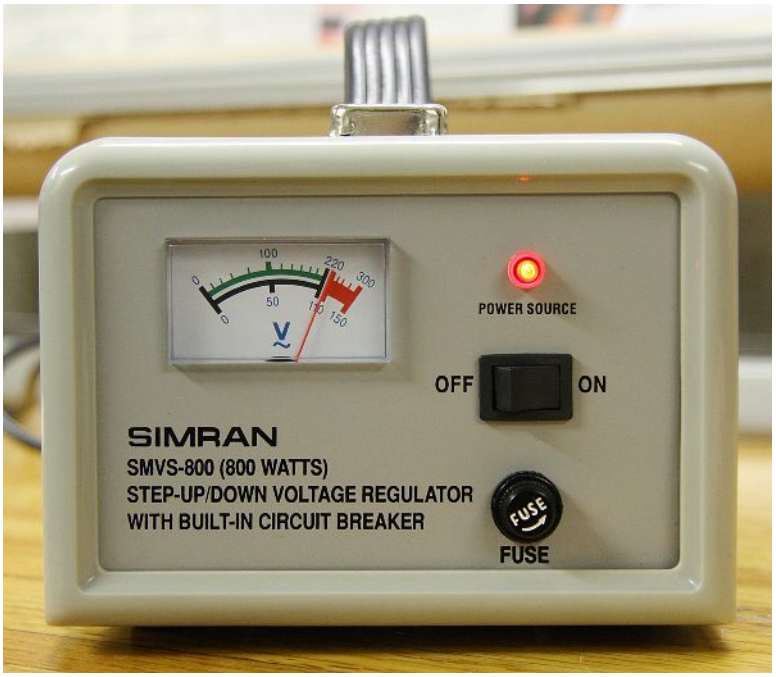
Transformer/Voltage Stabilizer. Unit has power cord pre-wired for European outlets.

The units supplied by HMML have the capability to convert voltages from 220V down to 110V or from 110V up to 220V. The user must select the input voltage by moving a red switch on the back of the

transformer unit. In practice, the unit is shipped ready to convert 220-volt power to 110-volts.

Input Voltage Selector. The user can choose whether the transformer is a “step-up” or “step-down” unit. Here, it can be seen that the system is set for an input voltage of 220-volts, which is correct for converting 220-volt European electricity to the 110-volts needed by HMML's fluorescent lights. The tip of a pen or a paper clip is used to move the switch if needed.

Once the input voltage selection is correct, the power switch on the front panel of the transformer can be flipped on, powering up the unit.



Front Panel, Unit Powered Up. When turned on, a pilot lamp glows to indicate that unit is receiving power. An analog meter indicates the source voltage (read the scale that corresponds to the input voltage). The unit is protected by circuit breakers and a replaceable fuse (extra fuses are included with the unit).

The power meter on the front of the unit will fluctuate if the source electricity varies; this is normal. In some cases where the power varies considerably, these units have been known to make a clicking noise

as they struggle to stabilize the output voltage. If the input voltage varies too much, the unit is supposed to shut itself off, restarting when the source power is back in an acceptable range.

Lighting Units Plugged into Transformer/Stabilizer. Transformer is set to convert 220V power to 110V output. The fluorescent lights have American-style power plugs that are plugged into the 110V outlets on back of transformer unit.

The use of the transformer/stabilizer combined with the fluorescent lights should provide consistent lighting conditions for photographing manuscripts. If further stabilization is needed, the transformer itself can be plugged into an “uninterpretable power supply,” often called a UPS. These are battery backup units that computers are often plugged into. Using the UPS unit's internal battery and stabilization circuitry, such as system would have even more complete stabilization. If this extra step is needed, make sure the UPS unit is large enough to handle the load.