

TWO YEAR WARRANTY

All Elenco models are guaranteed for two full years on all parts and service. For the first 3 months, your power supply is covered at absolutely no charge. For the remaining 21 months, a nominal service charge is required to cover shipping and handling.

When returning merchandise for repair, please include proof of purchase, a brief letter of explanation of problem, and sufficient packing material. Before returning any merchandise please call our service department at (847) 541-3800 to obtain a return authorization number (RMA).

Service Department

Elenco Electronics, Inc.

150 W. Carpenter Avenue
Wheeling, IL 60090
(847) 541-3800

Elenco  **Precision**

Operating Instructions

**Spectrum Tube
Power Supply**

Model STPS-1

Read these instructions before operating this unit.

DANGER: 5,000VAC!! DO NOT TOUCH SOCKETS WITH POWER ON.

GENERAL SPECIFICATIONS

Input Power	AC 120V, 60Hz
Output Rated	5,000V without spectrum tube. 1,000V @ 10mA with spectrum tube.
Operating Temperature	10°C to 50°C
Storage Temperature	-20°C to 60°C

IMPORTANT SAFETY INSTRUCTIONS

1. The voltage between the 2 sockets is 5,000V. **DO NOT TOUCH THE SOCKETS WITH THE POWER ON. Remove the AC plug from the wall socket when replacing spectrum tubes.**
2. Before using the STPS-1, read the following instructions on the spectrum tube to prolong the life of tubes.
3. Do not expose the power supply to rain or snow, use only inside with normal temperature and humidity.
4. Do not disassemble power supply. Take it to qualified personnel or return it to the factory when service or repair is required. Incorrect reassembly may result in a risk of electric shock or fire.

OPERATING PROCEDURE

The STPS-1 Power Supply is a **HIGH VOLTAGE** supply. You should be very careful when working with this power supply.

1. Place the power switch to the **OFF** position. **DO NOT** plug into 120VAC when inserting the spectrum tube.
2. Slide the spectrum tube into the big socket. Very carefully push the tube and insert the other end into the small socket.
3. Plug the STPS-1 Power Supply into a 120VAC, 60Hz power outlet.
4. Turn the power switch to the ON position. Your power supply is now ready to operate.

OPERATING PROCEDURE (CONTINUED)

5. The tube life is extended if operation is cyclic for no more than 30 seconds "ON" and 30 seconds "OFF", etc., increasing the usable life of the tube.
6. **ALWAYS TURN OFF** the power switch before inserting or removing the spectrum tube. **DO NOT TOUCH THE SOCKETS WHEN THE POWER SWITCH IS ON. Do not put fingers into the sockets at any time.**

SPECTRUM TUBES

Every gas gives off a characteristic light when placed across a high electrical field. Spectrum tubes are built to contain different gaseous atoms or molecules. When a tube is placed into the STPS-1 Power Supply, the 5,000V field will cause the gases to emit energy in the form of a well defined light state.

An electron with high energy will return to a lower energy state simultaneously emitting a photon of energy $\Delta E = hc/\lambda$; where $h = 6.63 \times 10^{-30}$ J-s is Planck's constant, $c = 3 \times 10^8$ m/s is the speed of light and λ is the wavelength of light (in meters) in the emitted photon.

Each excited atom type emits characteristic wavelengths determined by energy level differences ΔE present in that species. One may observe a particular color with the eye; analysis with a spectrometer will reveal a series of sharp (monochromatic) emission lines.

Spectrum tubes use research-grade gases and vapors to provide bright-line spectral lines of high clarity. They are designed for optimum intensity and line resolution when examined in a student grade spectrometer equipped with a ca. 200 line/mm (5,000 line/inch) diffraction grating.

The pressure of the various gases in spectrum tubes is a carefully controlled value that will produce the maximum quality of brightness and clarity of the spectral lines.

The tube life is extended if operation is cyclic for no more than 30 seconds "ON", 30 seconds "OFF", etc., increasing the usable life of the tubes.

Some tubes using neon, helium and other gases found in cold cathode display signs can run continuously with less deterioration of the quality of the spectral lines. The others, such as hydrogen, the halogens and water vapor, require more care in processing to increase the life. Pure nickel electrodes and the best research grade gases are used, and meticulous care is taken in processing to increase service life.

However, the tubes all start to contaminate at a very slow rate when used. How soon this can be detected by the user depends on the sensitivity of the measuring equipment. If the tubes are used as recommended and not allowed to get overheated, the useful life, or time it takes to detect contamination with the usual measuring equipment, is very long.