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# Spectrum Tube—Single Power Supply

(Order Code ST-SPS)



## Introduction

The Vernier Spectrum Tube Single Power Supply offers a considerable improvement in safety, convenience, and tube life over conventional systems. It consists of a power supply, a tube storage unit, and a series of spectrum tubes filled with various gases for spectral inspection and measurement.

The system is available in two versions, differing in the style of the power supply and storage unit. In the Single Tube version, the power supply accommodates one tube and provision is made in the base for storage of up to six tubes. In the Carousel version, up to eight tubes are loaded into the power supply's tube carousel and the tube to be energized is selected by rotating the carousel until the required tube reaches the energizing station.

The spectrum tubes in the Spectrum Tube System offer extended life by having no internal electrodes and are protected against accidental breakage by a hard polymer shell. The Single Tube Power Supply's electrical parts are enclosed and a magnetic interlock system prevents application of the energizing voltage to the tube contacts unless a tube is correctly inserted. The height of the tube above the bench can be adjusted to accommodate the differing heights of the inlet slits of the various models of spectrometer in current use.

**NOTE:** Vernier products are designed for educational use. Our products are not designed nor recommended for any industrial, medical, or commercial process such as life support, patient diagnosis, control of a manufacturing process, or industrial testing of any kind.

## System Parts

### Power Supply & Storage Unit

1. Wall mount power supply



*Power Supply & Storage Unit*

2. Tube storage recesses
3. Power supply body and electronics
4. Tube well
5. Tube insertion aperture
6. Fiber holder (pictured below)

### Specifications

Wall mount power supply

input: 100-240 VAC, 50/60Hz; output: 15VDC, 1000mA, UL listed

Tube energizing supply:

1.8 kV AC

Power Supply & Storage Unit

dimensions: 26 × 18 × 29.5–38.0 cm

weight: 2.55 kg

Fuse:

T1AL 250V, 5 × 20 mm miniature

Height of center of light-emitting region above bench:

21.5–30.0 cm

Length of light-emitting region:

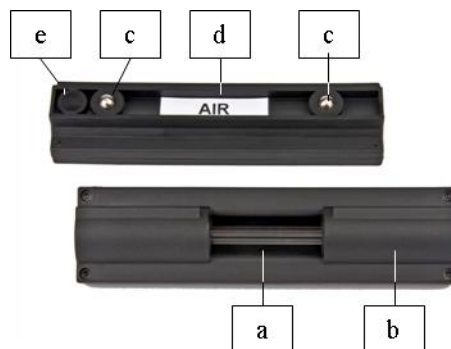
4.75 cm

Tube

dimensions (in shell): 15.5 × 4.0 × 3.0 cm

weight: 88 g.

### Tube



*Tube—Front & Back*

- a. Tube
- b. Hard polymer shell
- c. Spring-loaded contacts
- d. Gas species label
- e. Safety interlock magnet

### Fiber Holder

The Fiber Holder for the Spectrum Tube Single Power Supply securely holds an optical fiber in the proper position to carry light from the discharge tube to the spectrometer. Compatible with both Ocean Optics fibers and Vernier SpectroVis series fibers. The position of the fiber can be adjusted to optimize the light intensity. The Spectrum Tube Single Power Supply ships with one Fiber Holder. Additional holders can be purchased.

Order code: ST-FHS



## Operation

**CAUTION: This unit is suitable for operation in dry locations only. The tube becomes hot in operation. Do not touch the hot tube.**

### Inserting a tube

To ensure correct orientation of the tube in the tube well, the tube shell has a ridge along the front right side (see picture).

1. Match the ridge on the tube shell to the insertion aperture on the top of the power supply. The round magnet cover on the rear of the shell should be facing down.
2. Insert the lower end of the tube into the insertion aperture and slide the tube all the way down into the well so that it seats at the bottom of the well (see picture).



*Inserting a tube*



*End of tube –back view*

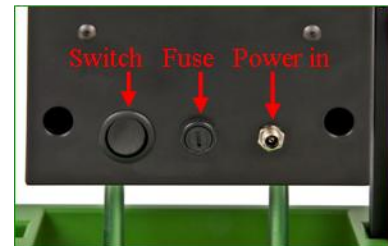


*Tube in place*

### Apply Power

The back of the power supply carries the power input socket, the fuse, and the on/off switch (see picture).

1. Insert the output connector of the wall mount power supply into the main power supply input socket.
  2. Insert the wall mount power supply into an electrical outlet.
  3. Turn on the power switch.
- The discharge will now strike and run.



*Power Supply—back*

### Adjusting the height of the tube

Various models of spectrometers have the entry slit at different heights. The power supply can be adjusted to bring the light emitting region of the tube to the appropriate height.

Grasp the base and top ledge of the power supply and raise the unit as needed.

### Changing the tube

The tube can be removed by placing a finger under the top ledge of the illuminated area and lifting the unit until its top can be grasped from above and lifted out (see picture).

Although tubes can be changed with the power turned on without damaging the tubes or risking electrical shock, because the supply voltage contacts (see picture) are automatically disconnected when the tube is lifted from its engaged position, this is not recommended, because of the risk of touching the hot tube.



## Storing the tubes and wall mount power supply

Recesses are provided in the base of the power supply for storing the wall mount power supply and up to six tubes (see picture).

## Maintenance

The Vernier Spectrum Tube System needs no special maintenance. It should be stored in a dry, dust-free environment.

**Note:** For some tubes the discharge may not strike immediately after turning on the power supply if the tube has not been operated for an extended period. *It may take up to 3 minutes for the discharge to strike for the first time. This is normal.* The discharge will then strike immediately.



*Removing a tube*

*Supply voltage contacts*

## Available Tubes

Tubes for the Spectrum Tube System are available with the following gases and vapor. Contact Vernier to obtain tubes.

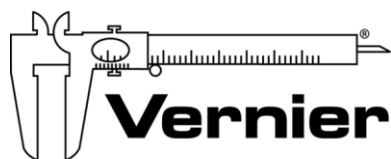
Gas species	Order code
Hydrogen	ST-H
Helium	ST-HE
Neon	ST-NE
Carbon Dioxide	ST-CO2
Air	ST-AIR
Argon	ST-AR
Nitrogen	ST-N



*Storage locations*

## Warranty

Vernier warrants this product to be free from defects in materials and workmanship for a period of two years from the date of shipment to the customer. This warranty does not cover damage to the product caused by abuse or improper use.



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Spectrum Tube - Single Power Supply patent pending

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