Instruction Sheet for the PASCO Model SN-7927A

Geiger-Müller Counter

Introduction

The PASCO SN-7927A Geiger-Müller Counter senses beta, gamma, and alpha radiation when connected to a computer interface such as the *ScienceWorkshop™ 500* or *750* Interface. The built-in power supply allows direct connection of the Geiger-Müller Counter to the input terminal of any computer interface that provides an available operating voltage of +5 V, 20 mA.

Use the Geiger-Müller Counter in all experiments described in the SE-7997 LabNet Geiger-Müller Interface manual and experiment guide, as well the SN-7973 Nuclear Science experiment manual. Its performance is nearly identical to that of the SE-7970A Geiger-Müller Probe, with several advantages:

- direct connection to the *Science Workshop 500* or *750* Interface (no additional power supply or adapter needed)
- versatile positioning options (hand-held or adjustable on a rod stand) that allow the device to be held closer to the radiation source
- audible feedback: the device beeps when it registers a count

Equipment

The Geiger-Müller Counter is equipped with a built-in Geiger-Müller (G-M) tube and integral power supply. Its power indicator, an LED, lights when an operating voltage is supplied to the unit. The unit has a buzzer that emits an audible signal for each pulse that is recorded. A plastic cap that provides protection for the delicate mica membrane is included. The cap has a venting hole that prevents the creation of a vacuum or pressure when the cap is removed or replaced.

> ➤ **Caution:** The mica window is extremely delicate. Do not cover the hole in the protective cap when removing or replacing it, and leave the cap in place except when alpha radiation is being measured. *Never touch the mica window!*

Data:
Window material: Mica
Diameter: 9.14 mm
Density: 1.5-2 mg/cm2
Count rate: max. 11,111 per sec (from a min. dead-time of 90 microseconds).

Required equipment:

- computer interface that provides an available operating voltage of +5 V, 20 mA, such as the *Science Workshop 500* or *750* Interface.

Additional equipment suggested:

- Small Base and Support Rod (SE-9451)
- Radioactive Sources (SN-8110)

PASCO scientific ®
10101 Foothills Blvd. • Roseville, CA 95747-7100
Phone (916) 786-3800 • FAX (916) 786-8905 • www.pasco.com

Operation with DataStudio and a *Science Workshop 500* or *750* Computer Interface

① Plug the stereo phone plug into any digital port on the interface box.

② Start DataStudio and select the geiger counter in the Setup window for the correct port.

③ Select a data display.

➤ **NOTE:** The geiger counter displays the number of counts in a given period of time. To change the time period, adjust the sampling rate.

Nuclear Safety

Most radioactive sources available to educators are very low level isotopes referred to as "license free" sources. This does not mean, however, that these materials represent no hazard to students. The Nucleus, P.O. Box R, Oak Ridge, Tennessee, 37830, has provided the following guidelines for use of low-level radioactive materials in classroom environments:

① Eating, drinking, and the application of cosmetics in the laboratory are not permitted.

② Pipetting by mouth is never permitted. Use suction devices such as pipette fillers.

③ Gloves and lab coats should be worn when working with all liquid radioisotopes.

④ Before leaving the lab, wash your hands thoroughly then check for possible contamination with a survey instrument.

⑤ All radioactive liquid wastes are to be poured into the liquid waste container, NEVER into a sink.

⑥ Report ALL spills, wounds, or other emergencies to your instructor.

⑦ Maintain good housekeeping at all times in the lab.

⑧ Store radioactive materials only in the designated storage area. Do not remove sources from the lab.

Copyright Notice

Limited Warranty

PASCO scientific warrants the product to be free from defects in materials and workmanship for a period of one year from the date of shipment to the customer. PASCO will repair or replace, at its option, any part of the product which is deemed to be defective in material or workmanship. The warranty does not cover damage to the product caused by abuse or improper use. Determination of whether a product failure is the result of a manufacturing defect or improper use by the customer shall be made solely by PASCO scientific. Responsibility for the return of equipment for warranty repair belongs to the customer. Equipment must be properly packed to prevent damage and shipped postage or freight prepaid. (Damage caused by improper packing of the equipment for return shipment will not be covered by the warranty.) Shipping costs for returning the equipment, after repair, will be paid by PASCO scientific.

Equipment Return

Should the product have to be returned to PASCO scientific, for whatever reason, notify PASCO scientific by letter or phone BEFORE returning the product. Upon notification, the return authorization and shipping instructions will be promptly issued.

Address: PASCO scientific
10101 Foothills Blvd.
P.O. Box 619011
Roseville, CA 95678-9011

Phone: (916) 786-3800

FAX: (916) 786-8905