Model SB-800
Surface Barrier Detector

Features

- **Fully Integrated Surface Barrier Detector**
- **Employs PIPS™ Detector**
- **Ultra Low A/B Crossover & Backgrounds**
- **Data Logging with USB Connectivity**
- **48-Hour Battery Operation**
- **Includes PC Software**

Part Number: 105-800

Introduction

The Model SB-800 Surface Barrier Detector's solid state PIPS™ detector facilitates efficient and cost-effective, simultaneous alpha and beta sample counting for air filters, smears, and swipes. This instrument meets the newer Electric Power Research Institute (EPRI) guideline for detecting a few disintegrations per minute of alpha amidst several hundred-thousand disintegrations per minute beta background. All data are automatically logged and easily retrievable via a USB connection. The light weight and battery operability afford convenient use in the field. With the optional detector shield, the Model SB-800 can be used virtually anywhere.

The instrument comes with PC control software that allows the user to set all parameters, view QC check settings, change alpha and beta window and threshold values, perform MDA (Minimum Detectable Activity), and retrieve the sample data saved to the logging memory.

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Specifications

DETECTOR: solid-state silicon detector
ACTIVE AND OPEN AREA: 1700 mm²
SCALERS: two each (one per channel), six-digit LCD displays with backlights providing a range of 0–999,999 counts (started by COUNT button)
SCALER LINEARITY: reading within 2% of true value
COUNT TIMER: single timer, switch adjusts from 0.1–60 minutes (0.1, 0.5, 1, 2, 5, 10, 60) or selects PC (PC is a user-customizable setting that allows user-defined counts from 0.1 to 546.1 minutes)
ALARM: alpha, beta, and alpha+beta alarms are user-settable
STATUS INDICATORS: backlit indicators for

- QC: daily Quality Control check needed
- LOW BATT: battery power is low
- CPM/DPM: counting in CPM or DPM mode
- αAL/βAL: count has exceeded alarm setpoint

BACKGROUND SUBTRACT: may be subtracted automatically in either CPM or DPM modes
ALPHA EFFICIENCY (4π geometry): 35% for ^{239}Pu
BETA EFFICIENCY (4π geometry): 15% for ^{99}Tc; 23% for ^{137}Cs; 34% for ^{90}Sr/^{90}Y
CROSSTALK (10 µR/hr field): alpha 5% or less; beta 0.1% or less
BACKGROUND (10 µR/hr field): alpha 3 cpm or less in 10 minutes (0.3 cpm); beta approximately 300 counts in 10 minutes (30 cpm)
INTERFACE: USB - includes a 1 meter (39 in.) USB cable for connection to a PC
SOFTWARE: free PC interface software allows parameter setup and data logging
AUDIO: built-in unimorph type speaker with volume control to provide a dual tone click-per-event audio
POWER: universal AC input (95–250 Vac, 50–60 Hz) wall-mount supply outputting 5 Vdc at up to 1 amp, or 4 "D" cell batteries
BATTERY LIFE: 48 hours
CONSTRUCTION: aluminum housing with powder coat finish, subsurface printed front panel
TEMPERATURE RANGE: -20 to 50 °C (-4 to 122 °F)
SIZE: 17.8 x 24.1 x 20.3 cm (7 x 9.5 x 8 in.) (H x W x L)
WEIGHT: 3.4 kg (7.5 lb) with four "D" cell batteries installed, with added shielding weight is approximately 8.4 kg (18.5 lb)

Protean Instrument

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