

Model 3030E with Model 43-10-1 Alpha/Beta Sample Counter

Radiation Detection for a Safer World



Ludlum Measurements, Inc.

Features

- Alpha Beta Dual Channel Sample Counter
- Simultaneous Alpha & Beta Counting
- 5.1 cm (2 in.) Diameter Sample Tray
- Independent Readouts
- CPM & DPM Modes
- Alpha/Beta Alarms
- QC Check
- 8-Hour Battery Operation
- Real Time Clock
- RS-232 Interface
- Includes PC Software



Part Number: 48-3456

Introduction

This system joins Ludlum's Model 3030E dual channel scaler with a Model 43-10-1 dual phosphor detector sample tray to produce a complete alpha beta sample counting system. The 3030E electronics incorporates independent backlit LCD readouts to support discriminated alpha and beta sample counting. The system features background subtraction, crosstalk correction, separate alpha/beta alarms, CPM/DPM operating modes, and a pre-scripted QC function with automatic reminder timer.

The instrument supports both 110 and 220 Vac operation, and includes a trickle-charged gel-cell battery for portable offsite use for up to eight hours. Status indicators located along the front panel inform the operator when another QC check is required, if the detector is nonfunctional, if it is operating in DPM or CPM mode, and if either an alpha or beta alarm setpoint has been exceeded.

Specifications

TUBE: 5.1 cm (2 in.) diameter magnetically shielded photomultiplier

WINDOW: 0.4 mg/cm² aluminized Mylar

ACTIVE and OPEN AREA: 20.3 cm²

SAMPLE HOLDER: aluminum housing with sample tray capable of holding a 2.5 cm (1 in.) or 5.1 cm (2 in.) diameter sample up to 1.02 cm (0.4 in.) thick

EFFICIENCY (4π):

alpha: 32% for ²³⁰Th; 39% for ²³⁸U; 37% for ²³⁹Pu

beta: 5% for ¹⁴C; 27% for ⁹⁹Tc; 29% for ¹³⁷Cs; 26% for ⁹⁰Sr/⁹⁰Y

CROSS TALK:

alpha to beta: 10% or less

beta to alpha: 1% or less

BACKGROUND:

alpha: 3 cpm or less

beta-gamma: typically 80 cpm or less (10 μR/hr field)

SOFTWARE: PC based to perform setup and calibration routines including background subtract, crosstalk correction, cpm/dpm modes, daily QC check parameters, alarm levels, and automatic plateaus. All parameters are stored in the instrument in non-volatile memory. The supplied software is capable of logging and storing the following: Sample Number, Sample Date, Sample Time, Alpha Count, Beta Count, Sample Type, Comments

ELECTRONICS:

size: 24.1 x 13.5 x 25.4 (9.5 x 5.3 x 10.0 in.) (H x W x D)

weight: approximately 2.7 kg (6 lb)

DETECTOR:

size: 23.6 x 11.4 x 23.6 cm (9.3 x 4.5 x 9.3 in.) (H x W x L)

weight: 1.9 kg (4.1 lb)