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Your Alternative
To The Obvious

Model 43-135
Large Area 2π Proportional Detector

Introduction

The Ludlum Model 43-135 is a large-area, 2π proportional detector designed for calibrating large-area alpha and beta sources. The windowless detector and gold-plated source tray are sealed together via heavy duty clamps, which permit operating at higher pressures (up to 0.2 MPa).

This detector design is in use at the National Institute of Standards and Technology (NIST), and has demonstrated superior beta response and counting statistics with uncertainties in the range of approximately 0.1%.

Specifications

PERFORMANCE
- alpha background: ≈ 0.0558 cps
- beta background: ≈ 27.4 cps
- measurement uncertainty: ≈ 0.1%
- detector homogeneity response: ± 0.2%

DETECTOR
- detector area: 25 x 20 cm (9.8 x 7.9 in)
- operating voltage: < 5000 Vdc
- plateau length: > 200 volts with a slope of ≈1%, typical plateau from 1200 to 2700 volts
- typical count rates: 10 to 2000 cps
- detector connector: hermetically sealed SHV connector (Ceramaseal part number 9263-06A or equivalent)
- detector assembly seal: Viton O-ring

PRESSURE REQUIREMENTS
- working pressure: 22.1 to 29.4 PSIA, 1.5 to 2 atmospheres absolute (152.4–202.8 kPa)
- maximum pressure: 45 PSIA (310.3 kPa)
- equipped with:
  - counting gas valves for inlet and outlet
  - pressure relief valve for over pressure protection
  - pressure gauge, 30 in. to 30 psi range (vacuum to 30 psig)

PHYSICAL
- size: 18.1 x 49 x 50.8 cm (H x W x L)
- maximum source dimension: 1.3 x 21.6 x 14 cm (H x W x L)
- weight: 37.2 kg