

The PM-10 Detector

Low energy gamma scintillation probe

The PM-10 is a gamma scintillation probe for detection of low energy gamma and X-rays. It can be purchased optimized for detection of ^{125}I and other low energy gamma emitters. The combination of the RAM DA 2000 monitor and the high efficiency of the PM-10 provides a minimum detectable level (MDL) of $0.35\text{Bq}/\text{cm}^2$ (approximately $1.10\text{-}5\ \mu\text{Ci}/\text{cm}^2$ surface contamination of ^{125}I).

A low voltage interface connects the RAM DA-2000 monitor with the probe. The PM-10 contains a highly efficient, hermetically sealed, NaI(Tl) scintillator, 2" diameter and 0.04" thick, coupled to a 2" photomultiplier tube.

This is encased in a rugged, splash proof housing for protection against shock, vibration and humidity. The probe also contains a high voltage power supply, single channel analyzer (SCA), pulse shaper, GM saturation indicator, detector identifier and malfunction detection circuitry. This configuration minimizes noise, improving sensitivity and stability.



FEATURES

- Contains Single Channel Analyzer
- MDL of $0.35\text{Bq}/\text{cm}^2$

APPLICATIONS

SPECIFICATIONS

Radiation Detected	Low energy gamma, 10keV to 80keV
Scintillator	NaI(Tl) 2" diameter, 0.04" thick. Window of 1 mil. (0.001")
Energy Calibration	SCA within the energy range ± 5 keV (minimum)
Count Rate Range	0 - 50,000cps
Output Signals	TTL pulses. Detector status: ID, OK, malfunction, overflow
Temperature Range	Operation: -10°C to +50°C (15°F - 122°F) Storage: -20°C to +60°C (-5°F - 140°F)
Humidity Range	40% to 95% RH (non condensing)
Dimensions	290mm (11.4") length, 70mm (2.8") width
Weight	1.25kg (2.8lbs)
Casing	Aluminum, splash proof

Perfection
In
Detection

Surface Sensitivity (in contact):

Isotope	Sensitivity	MDL Bq/cm ²
	cpm/Bq/cm ² (a) / (b)	
⁵¹ Cr	4.60 / 0.65	150 / 225
¹²⁵ I	460 / 440	1.50 / 0.35
¹³¹ I	90 / 35	7.50 / 4.30
^{99m} Tc	150 / 30	4.50 / 4.50
⁹⁰ Sr+ ⁹⁰ Y	280 / 40	2.50 / 3.50
³⁶ Cl	8.0 / 3.50	85 / 43
²¹⁰ Pb	95 / 35	7.40 / 4.30
³² P	180 / 30	4.0 / 4.50

(a) without SCA calibration (open window)

(b) Energy calibrated to ¹²⁵I (approx. 30keV)

* Minimum detectable level calculations are based on background reading of 600 and 120 cpm for the detector with an open window (no energy calibration) and the detector calibrated to ¹²⁵I respectively. The confidence level is 99%

Rotem Part

Model PM-10

BAK-1490

Model PM-10 (energy calibrated for ¹²⁵I)

BAK-1491

ROTEM INDUSTRIES reserves the right to change specifications without advance notice

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