



PM-10 X-Ray & Low Energy Gamma Probe

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



A low voltage interface connects the DA 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, splashproof housing for protection against shock, vibration and humidity. The probe also contains a high voltage power supply, single channel analyser (SCA), pulse shaper, GM saturation indicator, detector identifier and malfunction detection circuitry. This configuration minimises noise, improving sensitivity and stability.

Specifications

Radiation Detected	Low energy gamma, 10keV to 80keV
Scintillator	NaI(Tl) 2" diameter, 0.04" thick. Window of 1 mil. (0.001") aluminium
Energy Calibration	SCA within the energy range $\pm 5\text{keV}$ (minimum)
Count Rate Range	0 - 50,000cps
Output Signals	TTL pulses. Detector status: ID, OK, malfunction, overflow
Temperature Range	Operation: -10°C to $+50^{\circ}\text{C}$ (15°F - 122°F) Storage: -20°C to $+60^{\circ}\text{C}$ (-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	Aluminium, splash proof

Surface Sensitivity (in contact)

Isotope	Sensitivity cpm/Bq/cm ² (a) / (b)	MDL* 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
$^{99\text{m}}\text{Tc}$	150 / 30	4.50 / 4.50

$^{90}\text{Sr}+^{90}\text{Y}$	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

NOTES

(a) without SCA calibration (open window)

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

* Minimum detectable level (MDL) 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 ^{125}I respectively.

The confidence level is 99%

Ordering Information

Model PM-10	3-0010
Model PM-10 (energy calibrated for 125I)	3-0010-125

Note: Specifications subject to change without notice.

