

The PM-33 Environmental Monitor

Radiation Detection Division

Health Physics



The **PM-33 Environmental Monitor** is an extremely sensitive and very wide range gamma survey meter designed to measure dose radiation with a measuring range of between background to 15 mSv/h (1.5 R/h). The 3" x 3" Scintillation Detector for detection of gamma radiation from 0 to 50,000 cps with a sensitivity of 4,500 CPS per $\mu\text{Sv/h}$ (^{137}Cs) provides an accurate dose rate till 10 $\mu\text{Sv/h}$ and the Meter compliments with an accurate dose rate till 15 mSv/h (1.5 R/h).

Functions

- Automatic internal monitor and detector test
- Automatic switching between external and internal detectors
- Dose rate and accumulated dose (mR and μSv)
- Detector failure, overflow and low battery alarms
- User selectable threshold levels
- Piezo-electric audio element indicates count rate, failure and exceeded thresholds.
- Indicators in case of reading over thresholds alarm value
- Wide range of measurement - up to 100 Sv/h
- Dead time correction



Features

- Portable, One hand operation
- Backlight
- Large, easy to read, color coded TFT Display
- Ergonomically designed to function using only 4 push-buttons
- Fast time responses while keeping the reading fluctuations minimal.
- Low current consumption, more than 100 hours of operation with a 4 1.5 Volt AA batteries.
- CE certified.

Technical Data

The firmware of the instrument translates the counts from the external detector into units of dose rate according to sensitivity measured against a ^{137}Cs source.

Detectors	Low Range: Scintillator, diameter 3", height 3" High Range: GM Tube ZP1201
Range	0.1 nSv/h to 15 mSv/h (0.01 uR/h to 1.5 R/h)
Sensitivity (^{137}Cs)	4,500 cps/uSv/h (^{137}Cs)
Accuracy	$\pm 10\%$ of reading within the measured range
Energy range	23 KeV to 2 MeV
Energy dependence	$\pm 30\%$ related to ^{137}Cs
Angular dependence	Less than $\pm 40\%$ for $\pm 45^\circ$ of preferred direction.
Thresholds	User selectable
Display	TFT Color Display including backlight
Audio	Internally mounted piezo-electric element
Measuring Units	mR/h and mR or $\mu\text{Sv/h}$ and nSv
Controls	Menu Driven
Power source	4 x 1.55 AA batteries supplying > 100 hours of operation or external USB port Automatic battery check under full load
Temperature range	Operation: -10°C to $+50^\circ\text{C}$ (15°F – 122°F) Storage -20°C to $+60^\circ\text{C}$ (-5°F to 140°F)
Humidity range	40% to 95% RH (non-condensing)
Casing	Ruggedized Plastic
Dimensions	Meter: 134 mm (L) x 80 mm (B) x 35 mm (W) Detector: 370 mm (L) x 100 mm (D)
Weight	2.30 Kg's

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