



NeutronRAE Pager

Rapid detector of γ -ray (gamma) and neutron sources

The **NeutronRAE Pager** is a rapid detector of γ -ray (gamma) and neutron sources. Cesium iodide (CsI) and lithium iodide (LiI) scintillators provide low level detection in a compact unit 100's of times more sensitive than a similar sized Geiger-Muller detector. Even low energy neutrons in the thermal range can be detected. The **NeutronRAE Pager** alerts first responders to the presence of a radiation threat well before they might be exposed to health threatening levels. This same high sensitivity allows security personnel to instantly detect smuggled nuclear material. The **NeutronRAE Pager** is particularly useful for detecting neutrons from weapons grade plutonium (^{239}Pu), which are much more difficult to shield than γ -rays. Outfitting a large number of security personnel with **NeutronRAE Pagers** can help establish a "moving curtain" of radiation protection that can be more effective than large, fixed radiation detectors.

The **NeutronRAE Pager** is a detector not a personal dosimeter. Dosimeters are designed to track an individual's exposure to radiation while working in a contaminated area. They are unable to instantaneously alarm to low-level radiation threats. The **NeutronRAE Pager** packs the sensitivity of large radiation survey tools into a compact package that can protect first responders while at the same time catching "Bad Guys."

The **NeutronRAE Pager** alarm levels can be quickly and easily reset by the user to "zero out" background radiation levels for effective searching or to cancel out higher ambient radiation levels. The direct readout of γ -ray dosage rate with

simultaneous counts per second (cps) allows users to always have a dosage rate reference point so that repeated zeroing will not allow radiation levels to go unnoticed.

Key Features

- Meets rigorous ITRAP (Illicit Trafficking Radiation Assessment) requirements for the detection of illicit trafficking of radioactive materials
- Easy-to-read backlit display faces operator when worn on belt
- Continuous digital readout in $\mu\text{R/h}$ ($\mu\text{rem/h}$) for gamma and cps (counts per second) for neutron. Optional gamma display in $\mu\text{Sv/h}$ ($\mu\text{Sieverts/h}$)
- Fast 0.25-second response
- Two operation keys, simple programming
- Calibrated for life
- Single AA Alkaline battery lasts up to 1000 hours
- Built-in audio and vibration alarms
 - Automatic background level referencing on start-up and on user demand
- Robust Construction
 - Passes drop test from 28" (0.7m) to hard concrete

- Water resistant for easy decontamination
- Low EMI interference from cell-phones and portable radio
- Integral belt clip

Applications

- Alert First Responders to radioactive threats
- Catch "Bad Guys" smuggling radioactive materials
- Customs & border patrols
- Law enforcement
- Security officers in nuclear power facilities, banks, government laboratories, medical facilities
 - Military
- Government agencies
- Hazmat teams
- Fire Departments



Specifications*

Detector Specifications

Size	3.4" (8.7 cm) L x 2.8" (7.2 cm) W x 1.2" (3.2 cm) H without clip
Weight	7 oz (190 g) with battery
Sensors	CsI (TI-doped) scintillator for gamma LiI (Eu-doped) scintillator for neutron
Battery	One alkaline AA battery
Operating Hours	800 hours continuous (typical)
Display	LCD, with manually activated backlight continuously shows dosage rate for gamma in $\mu\text{R/h}$ ($\mu\text{Sv/h}$) or neutron rate in counts per second
Detectability of Sources	Meets ITRAP requirements for gamma and neutron sources
Energy Range	0.033 - 3.0 MeV for gamma Thermal - 14 MeV for neutron
Responsive Interval	0.25 sec
Sensitivity	1000 cps per mR/h (100 cps per $\mu\text{Sv/h}$) for γ (typical)
Dose Equivalent Rate (DER) Range (for ^{137}Cs)	1–4000 $\mu\text{R/h}$ (0.01–40 $\mu\text{Sv/h}$) for gamma
Accuracy of DER for ^{137}Cs	$\pm 30\%$
Operation Keys	2 operation/program buttons
Direct Readout	$\mu\text{R/h}$ for gamma ($\mu\text{Sv/h}$ optional) cps for neutron
Alarm Setting	Programmable alarm sensitivity with background compensation to minimize false alarms
Alarm Modes	Audible and internal vibration alarms; separately enabled or disabled; automatic reset
Calibration	Background level reference automatic on start-up, plus user initiated as needed. No span calibration required for life of instrument.
IP Rating	IP65 rating
Shock Resistance	Passes drop test from 28" (0.7 m) to concrete surface
Temperature	-22°F to 122°F (-30°C to 50°C)
Humidity	0% to 95% relative humidity at 95°F (35°C); no effect
EMI Interference	CE approval
Attachment	Belt clip
Warranty	1 year

*Ongoing projects to enhance our products means that these specifications are subject to change

Ordering Information

Model PRM1703M Monitor Includes

- NeutronRAE Pager unit
- Belt clip
- Alkaline AA battery
- Operation and maintenance manual



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