

NeutronRAE II

Personal Radiation Detector



Key Features

- Detects neutrons from weapons-grade Plutonium (^{239}Pu)
- Sensitive CsI and LiI scintillators for excellent search capability and fast response
- Continuous digital dose rate readout in $\mu\text{R}/\text{h}$ or $\mu\text{Sv}/\text{h}$ for gamma radiation, and counts per second (cps) for neutron radiation
- Continuously accumulated total dose readout for gamma radiation
- IP-67, immersible in water for easy decontamination
- Two operation keys, simple intuitive programming
- Continuous datalogging with a large-10,000-point datalog capacity

Applications

- Alerts first responders to radioactive threats
- Customs and border patrols
- Security officers in nuclear power facilities, banks, government laboratories, medical facilities
- Military
- Government agencies
- HazMat teams
- Police and fire departments

RAE Systems NeutronRAE II is a personal radiation detector that provides rapid detection of both gamma and neutron sources. The NeutronRAE II's high sensitivity can alert users to the presence of a radiation threat well before they might be exposed to health-threatening levels.

The NeutronRAE II features a loud audible alarm, bright flashing LEDs, and a vibration alarm. Each alarm can be disabled separately. NeutronRAE II's water-resistant design makes for reliable operation in wet environments and for easy decontamination.

- Quick detection of radiological threats
- Alerts the wearer with a loud audible buzzer, bright flashing LEDs, and a built-in vibration alarm
- Water resistant/immersible
- Dose accumulator tracks total dose exposure from gamma radiation
- NeutronRAE II is designed in compliance with IEEE ANSI N42.32 standard

Detector kit includes :

- NeutronRAE II personal radiation detector
- Belt clip
- 2 AA alkaline batteries
- Wrist strap
- User's Guide
- Calibration certificate
- ProRAE Studio II software

NeutronRAE II

Personal Radiation Detector

Specifications

Sensor

Radiation Detector

- Gamma: 1cc CsI (TI) with Photodiode
- Neutron: 1cc LiI (Eu) with Photodiode

Energy Range

- Gamma: 0.06 to 3.0 MeV
- Neutron: thermal to 14 MeV

Dose Equivalent Rate (DER) Range for ^{137}Cs

1 to 20 mR/h (0.01 to 200 $\mu\text{Sv/h}$)

Accuracy of DER

$\pm 20\%$

Neutron Measuring Range

1 to 100 cps

Dose Range

1 μR to 999 R (0.01 μSv to 9.9 Sv), gamma only

Background Reference

Background level reference automatic on start-up, plus user-initiated as needed (Search Mode only)

Calibration

None required. Periodic functional test recommended using 0.5 μCi or higher ^{137}Cs check source. Factory calibration available if needed.

Alarm

Alarm Alerts

Loud audible buzzer (85+ dB @ 12"/30 cm), built-in vibration alarm, highly visible LED lights on both sides of LCD graphic display, can be separately enabled or disabled

Alarm Modes

Search Mode: Gamma alarm threshold based on variations in local background level
Safety Mode: User-programmable low and high gamma alarm thresholds based on dose rate (applies to gamma alarm only)

Datalogging and Communication

Datalog Size

10,000 data points (20 days at 180-second intervals)

Datalog Modes

Continuous: Logs data at all time
Event-Driven: Starts logging data on alarm

Datalog Interval

User programmable, 1 to 3,600 seconds

Communication

Built-in Bluetooth® radio interfaces with computer for datalog download

Power

Battery

2 AA alkaline batteries

Battery Runtime

500 hours

Operating Environment

Temperature

-20° C to 50° C (-4° F to 122° F)

Temperature Alarm

Temperatures above 50° C (122° F) cause a high temperature alert message

Humidity

0% to 95% (non-condensing)

Shock Resistance

Passes drop test from 59" (1.5 m)

IP Rating

IP-67 (immersible)

Physical Characteristics

Display

Graphic LCD with 1.2" x 0.75" (30.5 mm x 19 mm) viewable area can be flipped for view by user; Radiation intensity displayed in cps (gamma, neutron) or dose rate in $\mu\text{R/h}$ or $\mu\text{Sv/h}$ (gamma only)

Direct Readout

Dose rate, peak rate, minimum rate, total gamma dose, battery status, current time and date, current time since start-up, internal temperature

Ergonomics

Nonslip rubber housing with grippable ridges securely fits hand or glove

Keypad

2 operation/program buttons

Size

4.92" x 2.68" x 1.38" (125 mm x 68 mm x 35 mm)

Weight

10 oz (283 g)

Attachments

Rugged metal belt clip and wrist strap

Specifications are subject to change

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