



NeutronRAE II

Personal Radiation Detector



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.

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

- **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**



A First Responder uses the RAE Systems NeutronRAE II for audible and flashing alerts about the presence of a radiation threat and tracking of total dose exposure from gamma radiation.



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SPECIFICATIONS

Sensor

Radiation Detector	Gamma: 1cc CsI (TI) with Photodiode Neutron: 1cc Lil (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 μSv/h)
Accuracy of DER	±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.

Alarms

Alarm Alerts	<ul style="list-style-type: none">• 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 times 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 μR/h or μSv/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.

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

ORDERING INFORMATION (MODEL PRM-3021)

Product	Part Number
NeutronRAE II Detector Kit	047-0401-200

CORPORATE HEADQUARTERS

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