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Efficient radiation detection

Thermo Scientific RadEye PRD4 Personal Radiation Detector

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Efficiency in the field.

The Thermo Scientific™ RadEye™ PRD4 and PRD-ER4 personal radiation detectors provide highly sensitive radiation detection capability with little to no nuisance alarms, saving users valuable wasted time adjudicating alarms while at the same time improving or increasing scanning throughput. Additionally, the RadEye PRD4 identifies the nature of the discovered material in a manner configurable for your operation or user skills by distinguishing between artificial vs natural sources of radiation.

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- Larger, brighter, and more visible display
- Neutron radiation alert
- 30% improved sensitivity over previous model
- Linear high dose rate detector

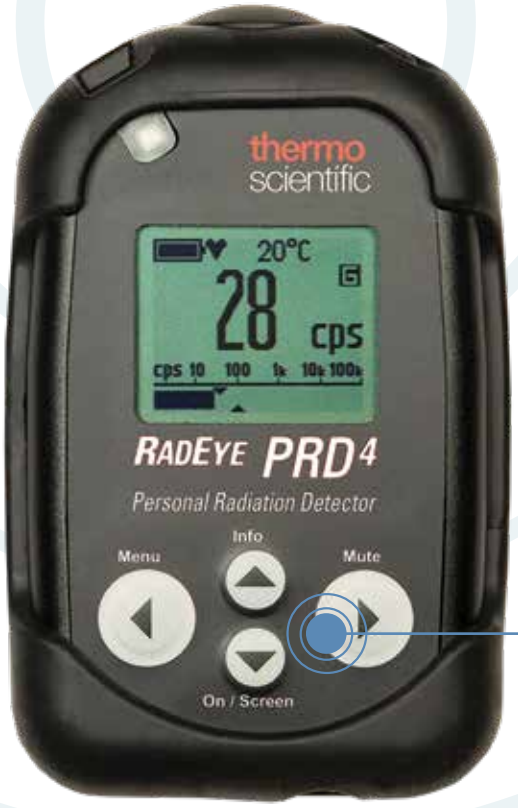
Neutron alert

The neutron capability of the RadEye PRD4 personal radiation detector provides an additional layer of detection capability that is critical in determining the level of the radiation threat or problem.

Personalized for each user

Configure the RadEye PRD4 personal radiation detector as a simple 0 to 9 radiation level gauge Or turn on dose rate readings, simplified gamma Natural and Artificial classification, or basic count rate mode.

Easy information. Smarter decisions.



- No retraining or relearning for infrequent users
- Get results automatically, without the need to press buttons
- Quickly guides you through next steps after an alarm
- Simple 4 button design
- Comprehensive data neatly organized and presented on screen

Ratemeter

Can be configured to display dose rate or count rate in the main display

Accessories

Bluetooth™ Adaptor and mobile app.

Faster response to alarms without exposing operation

RadEye PRD4 kit

Lu test kit adaptor for performance checking, cable and docking stating for detailed analysis of data on a PC.

Holster options

A wide range of holster options are available

Extending pole

Extend the reach of your PRD

We offer a comprehensive range of accessories. To see a full listing of accessories visit **thermofisher.com/prdaccessories**

Rugged and practical.

- Can be worn in holster or standard service belt
- Small and lightweight
- Long battery life
- Drop resistant to 1.5m
- IP65
- Can be operated in extreme temperatures

In field calibration

The ability to calibrate the units in the field saves on down time and extra inventory to support costly turn-in/replacement resources.

Stay focused

- With advanced NBR, agencies have seen nuisance alarms due to granite, natural stone and subway tiles reduced by 80% after deploying the RadEye PRD4 without increasing alarm thresholds or sacrificing sensitivity.

RadEye PRD4 Ordering information

Part number	Description
425067126	RadEye PRD4, Pocket–sized personal radiation detector
425069160	Radeye PRD4 Charger package contains 1ea. Radeye PRD4, desktop charger, charging back, and batteries
425069161	Radeye PRD4 Charger/BTLE package contains 1ea. Radeye PRD4, desktop charger, BTLE charging back, and batteries
425069162	RadEye PRD4-KIT, contains 1 ea. RadEye PRD4, Lutetium Test Adapter, Desktop holder + USB connection cable, Software package RadEye.exe, Holster and spare AAA batteries packaged in a hardened plastic case
425069163	Radeye PRD4 Vehicle Kit, contains 1 ea. RadEye PRD4, Lutetium Test Adapter, Vehicle charging kit, Bluetooth adapter, Software package RadEye.exe, Holster and spare AAA rechargeable batteries

RadEye PRD-ER4 Ordering information

Part number	Description
425067127	RadEye PRD-ER4, Pocket–sized personal radiation detector
425069170	Radeye PRD-ER4 Charger package contains 1ea. Radeye PRD-ER4, desktop charger, charging back, and batteries
425069171	Radeye PRD-ER4 Charger/BTLE package contains 1ea. Radeye PRD-ER4, desktop charger, BTLE charging back, and batteries
425069172	RadEye PRD-ER4-KIT, contains 1 ea. RadEye PRD-ER4, Lutetium Test Adapter, Desktop holder + USB connection cable, Software package RadEye.exe, Holster and spare AAA batteries
425069173	Radeye PRD-ER4 Vehicle Kit, contains 1 ea. RadEye PRD-ER4, Lutetium Test Adapter, Vehicle charging kit, Bluetooth adapter, Software package RadEye.exe, Holster and spare AAA rechargeable batteries

Detecting artificial radiation utilizing Natural Background Rejection (NBR) Technology

How does it work?

NBR has long set the RadEye PRD apart in the detection of low levels of artificial radiation, while at the same time reducing false alarms. NBR distinguishes artificial radiation from fluctuations in the naturally occurring background (NORM) by analyzing imbalances in the energy distribution of gamma radiation. The RadEye will alarm when these energy imbalances are detected even if the total radiation level does not elevate. This makes the RadEye unique for true field operations.

- Reduce false alarms
- Better for detecting low levels of artificial radiation such as hidden or shielded sources

How does it work?

NBR ignores fluctuations in naturally occurring radiation (NORM) while analyzing the energy imbalance of artificial radiation.

Without NBR

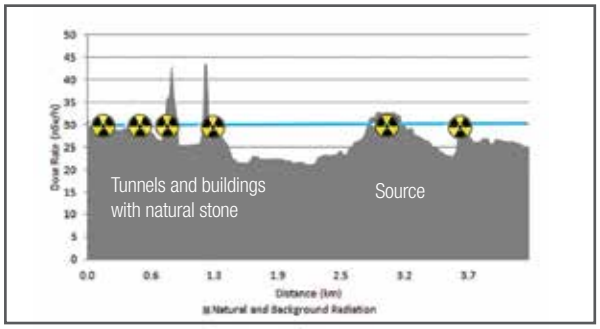
- Higher threshold for alarm
- Numerous alarms, most due to natural radiation
- Nuisance for operator, may ignore

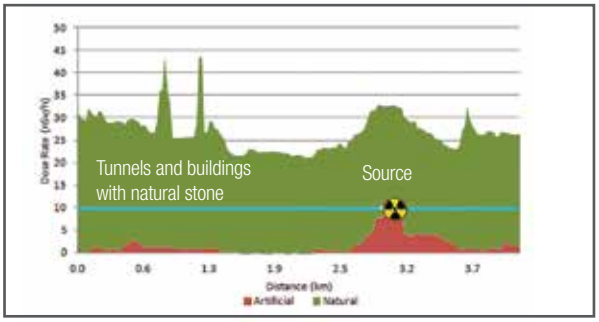
Natural background rejection scenario

Driving through tunnels, under bridges and past buildings with natural stone and past an artificial source.

With NBR

- Lower threshold for alarm
- No false alarms
- Only alerts to artificial sources
- Operator knows to act



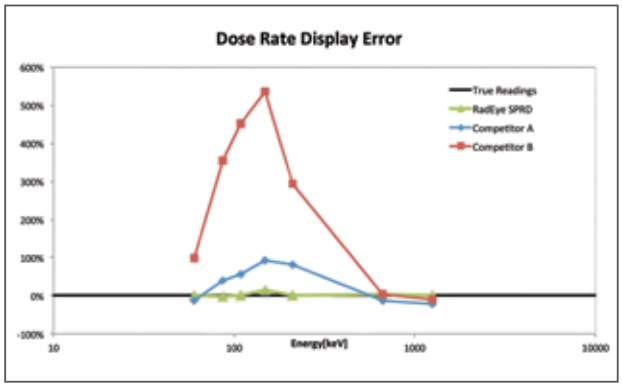


The RadEye PRD provides Advanced NBR with more energy bins to identify even complex mixes of artificial radiation from NORM. And the outstanding detector sensitivity of the RadEye PRD further boosts its NBR performance.

An architecture that improves dose rate accuracy

The primary purpose of a personal radiation detector (PRD) is to search and find illicit radiation sources. And while most PRDs provide dose rate measurements for personal safety reasons, this is typically a secondary purpose of the PRD. As a result, most PRDs specify dose rate accuracy in context with only one or a few gamma energies (eg., Cs-137 at 662keV). But what about accurate dose rate measurements associated with other isotopes?

The architecture of the PRD enables accurate dose rate measurements across the broader gamma spectrum which enables better personnel safety.



The energy compensated dose rate response of the RadEye PRD ensures more accurate dose rate measurements providing greater assurance of personal safety.

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Specifications

		RadEye PRD-ER4	RadEye PRD4
Radiation detected and analyzed		Gamma and X-rays plus neutrons via prompt gamma	Gamma and X-Rays plus neutrons via prompt gamma
Number of detectors		1 Low Dose Rate Detector and 1 High Dose Rate Detector	1 Low Dose Rate Detecto
Low dose rate / Search detector			
Material		CsI(Tl)	
Sensitivity (662 keV)		200 cps per µSv/h	
Energy range		58 keV – 6 MeV: for dose and dose rate measurement 20 keV – 6 MeV: for count rate (pager function)	
Dose rate range		10 nSv/h - 250 µSv/h (1 µR/h - 25 mR/h)	
NBR (Natural Background Rejection)		Advanced algorithms	
Neutron detection and verification		Prompt gamma analysis	
Continuous gain stabilization		Sourceless detector performance algorithm	
Fast gain verification and adjustment		Lutetium test adapter (< 10 nCi Lu-176)	
High dose rate detector (patent pending)			
Material		Plastic scintillator	Not applicable
Sensitivity (662 keV)		25 cps per mSv/h (0.25 cps per mR/h)	
Energy range		58 keV – 6 MeV: for dose and dose rate measurement 20 keV – 6 MeV: for count rate (pager function)	
Dose rate range		250 µSv/h - 10 Sv/h (25 mR/h - 1000 R/h)	
General specifications			
Battery type		2 x AAA alkaline or rechargeable NiMH	
Battery life		> 170 h (alkaline)	
Weight including batteries and rubber sleeve		195g	189g
Water/Dust rating		IP 65	
Drop tested		1.5 m on concrete (with rubber sleeve)	
Operating temperature		-4°F to 122°F (-20°C to 50°C)	
Dimensions		4.1 x 2.6 x 1.6 inches (with rubber protective sleeve)	
Wireless communications		Bluetooth (option)	
Wired communications		USB to IR	
Field calibration		Lutecium Adapter - no license required (Option)	
Standards compliance	Low dose rate range	ANSI N42.32 PRD standard fully compliant IEC 60846-1	
	High dose rate range	ANSI N42.33 IEC 60846-1	Not applicable

Find out more at **thermofisher.com/radiationmeasurement**

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