

thermo scientific

Changing the game in gamma and neutron radiation detection



Thermo Scientific RadEye SPRD-GN
Personal Radiation Detector



ThermoFisher
SCIENTIFIC

RIID capability in the palm of your hand

The Thermo Scientific™ RadEye™ SPRD-GN personal radiation detector is the first pager-sized PRD that substantially exceeds the neutron alarm requirements of ANSI N42.48 2008 and ANSI N42.32 2016. With outstanding neutron performance and reliable gamma IDs, the RadEye SPRD-GN may be the only radiation detection tool you will need.

- Gamma detection, gamma ID, and neutron detection in a small handheld pager
- Single detector enables less complex design, superior field reliability, and reduced size & weight
- Neutron alarms in <2 seconds compared to 5 seconds in both the ANSI N42.32 2016 and ANSI N42.48 2008 test procedures
- Patent pending source-less routines for continuous ID stabilization and periodic neutron alignment
- Advanced NBR identifies artificial radiation while minimizing false alarms

“I often work in challenging environments such as over water or in extreme temperatures and need a PRD that I know I can depend on.”

Auto adjust runs continuously in the background providing gain stabilization which enables the RadEye SPRD-GN to operate in harsh and changing environments



Straightforward, foolproof operation.



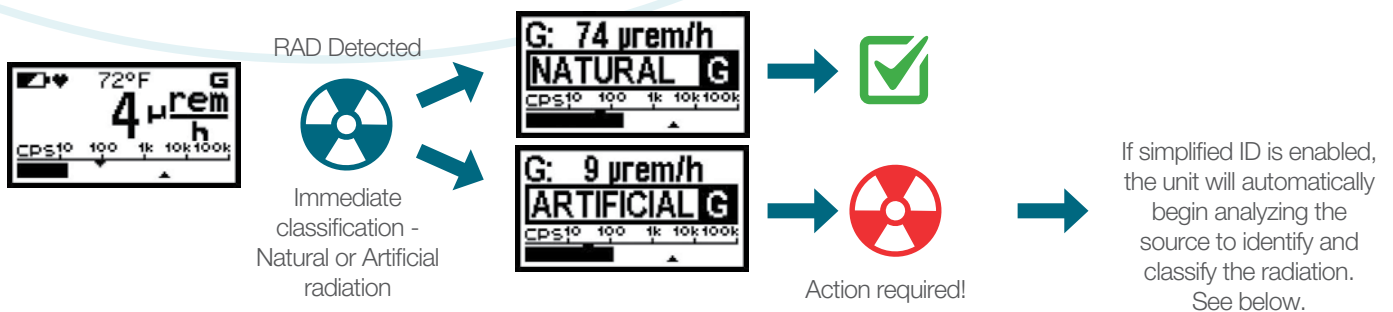
- No retraining or relearning for infrequent users
- Quickly guides you through next steps after an alarm
- Simple 4 button design
- Comprehensive data neatly organized and presented on screen

Configured based on your expertise

The RadEye SPRD-GN can be configured as a basic PRD with no classification, with simplified ID, or full spectroscopic capability to meet user experience and standard operating procedure.

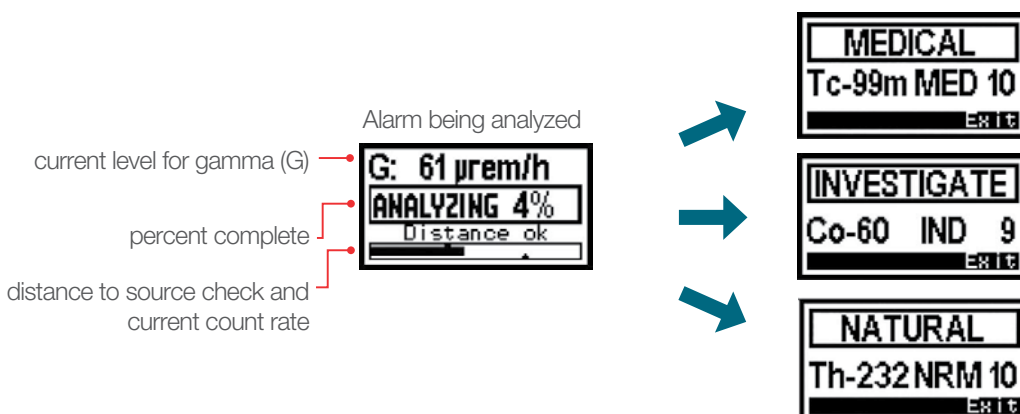
Ratemeter

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



Identification and Classification

Automatically classify and ID gamma radiation after receiving an alarm

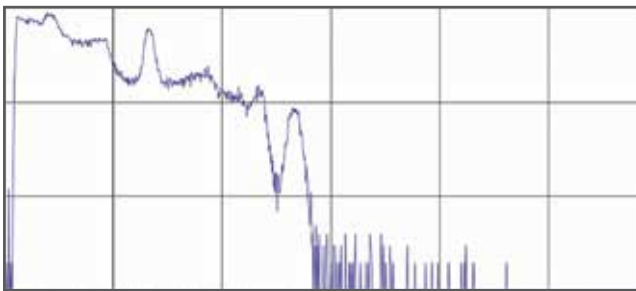


Rugged and practical.

- 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

“Gamma radiation is a possibility in my line of work. I would prefer not to carry multiple larger instruments to be able to monitor for different types of radiation.”

The RadEye SPRD-GN combines both powerful gamma and neutron detection in a handheld pager.



Download spectra

- Single step download and viewing of spectra using included software
- ANSI N42.42- 2012 compliant file for local review and reachback

With over 90,000 RadEye units sold world wide, our first responder, nuclear power and medical customers know first hand the longevity and reliability of the family of instruments. The RadEye SPRD-GN is a next generation detector that reestablishes the standard in personal radiation detection.



Detecting artificial radiation utilizing Natural Background Rejection (NBR) Technology

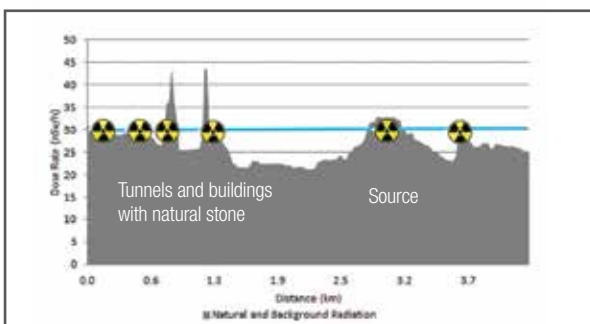
NBR has long set the RadEye PRD apart in the detection of even low levels of illicit radiation, while at the same time reducing false alarms by distinguishing artificial radiation from NORM. The spectroscopic architecture of the RadEye SPRD-GN enables advanced NBR by having more energy bins and intelligent algorithms to correctly identify even complex mixes of artificial radiation from NORM. And the outstanding detector sensitivity of the RadEye SPRD-GN further boosts its NBR performance.

How does it work?

When the SPRD-GN is scanning the environment, NBR strips away naturally occurring radiation from the environment.

Without NBR

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



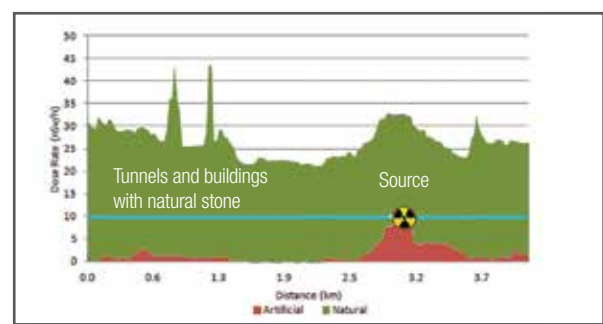
- Reduce false alarms
- Better detect low levels of artificial radiation such as hidden or shielded sources

Natural background rejection scenario

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

With NBR

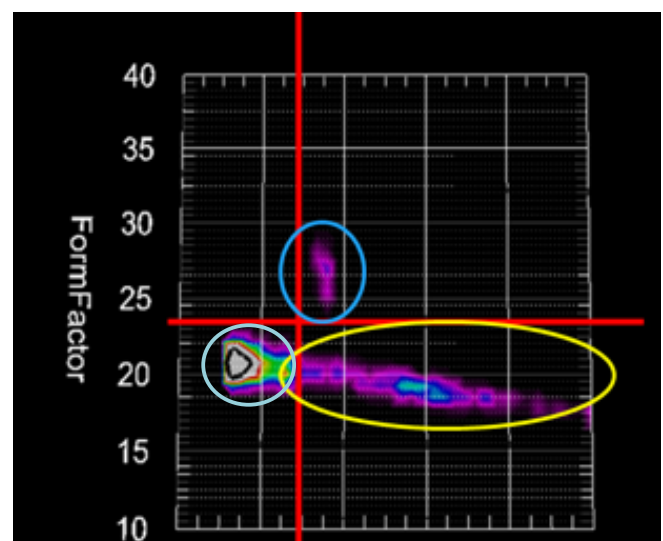
- Lower threshold for alarm
- No false alarms
- Only alerts to artificial sources
- Operator knows to act



The spectroscopic architecture of the RadEye SPRD-GN provides Advanced NBR with more energy bins to identify even complex mixes of artificial radiation from NORM.

Neutron Detection and Gamma Spectroscopy Using One Large Crystal

The RadEye SPRD-GN uses a sophisticated spectroscopic Cs₂LiYCl₆:Ce detector that is both gamma and neutron sensitive to achieve its pager size. The performance of this single "CLYC" detector can only be matched by much larger instruments that incorporate one detector for gamma radiation and a separate He-3 proportional counter tube for neutron detection. The SPRD-GN combines the unique CLYC radiation detection capability with pulse shape discrimination (PSD) to effectively separate the gamma radiation from neutron radiation. More specifically, the neutron background count rate of the SPRD-GN contains true neutron events only which allows the setting of very sensitive neutron count rate alarm levels. Lastly, a continuous reference for fine gain adjustments associated with gamma IDs is accomplished by monitoring the cosmic background neutron peak in the spectrum. This permanent source-less stabilization of the complete system is achieved even over open water where there is an absence of any naturally occurring radioactivity.



The RadEye SPRD-GN's CLYC and PSD filters provide clear delineation between the gamma radiation of interest (light blue), high energy charged particles typically from cosmic rays (yellow), and neutrons (blue).

RadEye SPRD-GN ordering information

Part number	Description
4250812	SPRD-GN, includes software for configuring RadEye and spectra download
4250813	SPRD-GN Kit- includes RadEye SPRD-GN, software, Holster (42506746), Lutetium test adapter (425067071), desktop holder (425067060), USB data cable (4254026), spare batteries, and rugged storage and carry case.

RadEye SPRD-GN specifications

Radiation Detected	Gamma and Neutron
Detector	CLYC (Cs2LiYCl6)
Energy Resolution (662 keV)	7.0%
Sensitivity (cps per $\mu\text{Sv/h}$ (662 keV))	110
NBR (Natural Background Rejection)	Advanced with 6 energy windows
Alarm Notification	Display, LED, Sounder, Vibe
Dose Rate Range	1 $\mu\text{R/h}$ - 25mR/h (10 nSv/h - 250 $\mu\text{Sv/h}$)
Energy Range (+/- 30%)	60keV - 3 MeV
Typical ID Time @ 1 $\mu\text{Sv/h}$ (100 $\mu\text{R/h}$)	~ 5 minutes
Gain Stabilization	Patent pending continuous source-less stabilization
Neutron Verification	thermal neutrons & fast neutrons
Neutron Alarm Response	<2 sec vs. ANSI N42.48 2008 1 sec vs. ANSI N42.32 2016
Thermal Neutron Sensitivity (cps/nv)	4
Designed to Meet Specification	ANSI N42.48 2008
Battery Type	AAA x 2
Estimated Battery Life	~ 120 hrs
Weight including Batteries and Rubber Sleeve (g)	175
Water/Dust Rating	IP65
Drop Distance onto Concrete	1.5m
Wireless Communications	BT4 optional
Wired Communications	USB to IR

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

Accessories



Bluetooth™ battery cover - Transmit data using low power BLE to a compliant mobile device.



Holster options

A wide range of holster options are available



Extending pole

Extend the reach of your SPRD-GN



RadEye SPRD-GN kit

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

Find out more at thermofisher.com/sprdgn

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