

# RadEye SPRD-GN

## Personal Radiation Detector



### 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.

### Natural Background Rejection (NBR)

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.

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

### NBR Scenario

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

### Key Features and Benefits

- 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



- 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

- 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

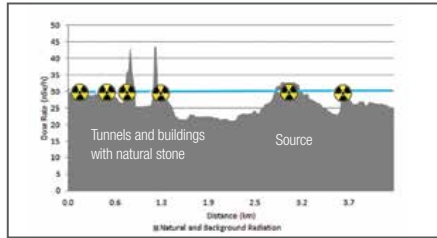
### Configured based on your expertise

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.

# RadEye SPRD-GN

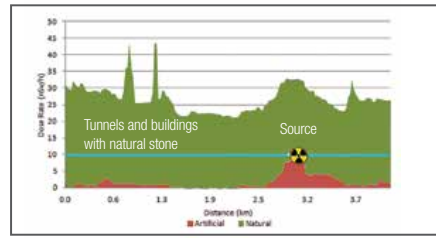
## Without NBR

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



## With NBR

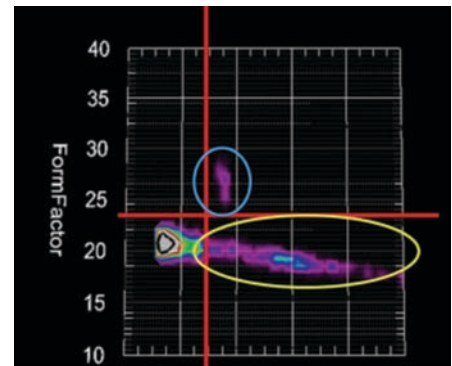
- Lower threshold for alarm
- No false alarms
- Only alerts to artificial sources
- Operator knows to act



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

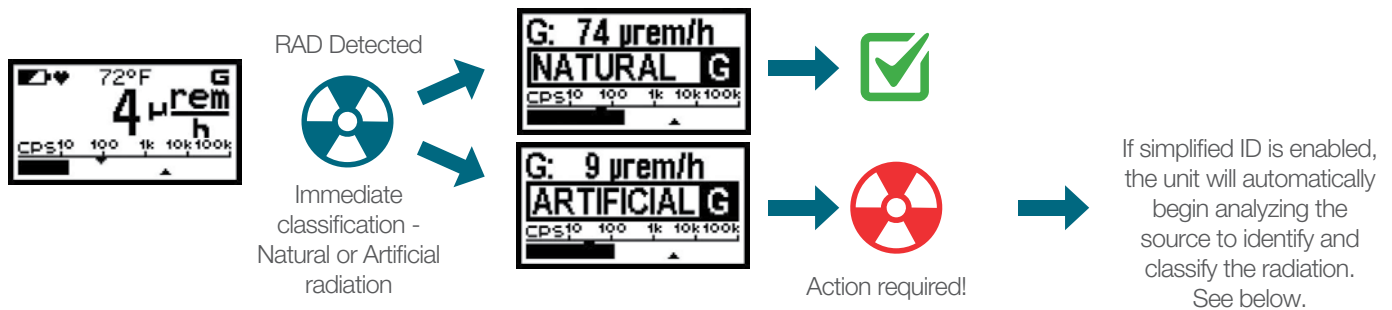
The RadEye SPRD-GN uses a sophisticated spectroscopic Cs2LiYCl6:Ce detector that is both gamma and neutron sensitive to achieve its pager size. The performance of this single "CLYC" detector can only be matched by much larger instruments that incorporate one detector for gamma radiation and a separate 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).

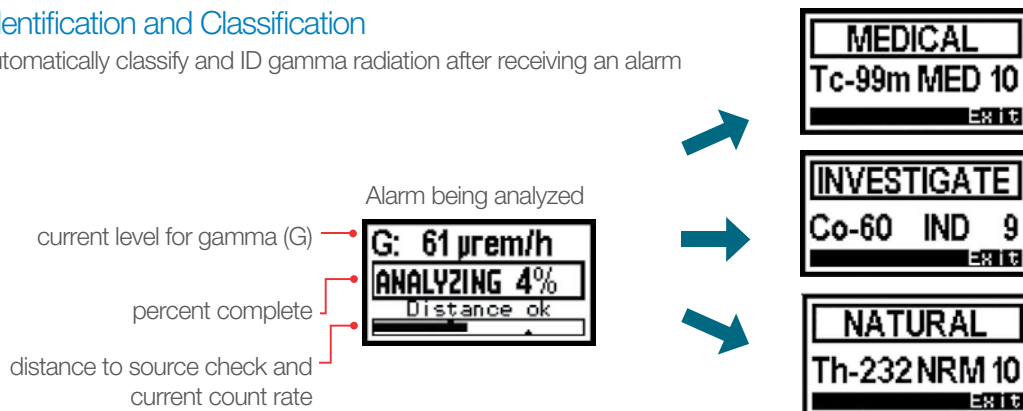
## Ratometer

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



# RadEye SPRD-GN

## 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)	7.00%
Sensitivity (cps per iSv/h (662 keV))	110
NBR (Natural Background Rejection)	Advanced with 6 energy windows
Alarm Notification	Display, LED, Sounder, Vibe
Dose Rate Range	1 iR/h - 25mR/h (10 nSv/h - 250 iSv/h)
Energy Range (+/- 30%)	60keV - 3 MeV
Typical ID Time @ 1iSv/h (100iR/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

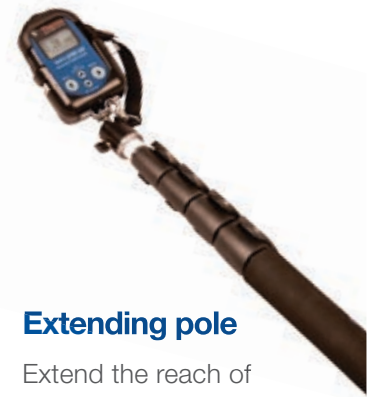
### Accessories

**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.

