

# NetS<sup>2</sup> SmartShield G300 Radiation Detector



The NetS<sup>2</sup> SmartShield G300 Radiation Detector is an advanced Spectroscopic Personal Radiation Detector (SPRD) that continuously monitors the local area to inform personnel of the presence of radiological materials. The detector is able to share information with other G300 Radiation Detectors via an intelligent NetS<sup>2</sup> network to precisely monitor large geographical areas.

## Always Protect the Protectors

The G300 Radiation Detector alarms when increasing radiation levels are detected, whether used as a standalone device or as part of a network.

## Spectroscopic Networked Radiation Detection

The G300 Radiation Detector is approximately the same size, form factor and weight as a smartphone and easily added to the service belt of public safety personnel performing their normal duties unrelated to radiation safety.

The G300 Radiation Detector is paired with a smartphone via Bluetooth, and automatically joins a SmartShield Network and initiates operation without operator intervention. Information from all networked detectors is combined and analyzed to provide real-time decision making capability including the identification of radiological sources as defined for SPRD devices.



NetS<sup>2</sup> SmartShield G300 Radiation Detector and Smartphone

## Background Radiation Mapping

Continuous background radiation mapping is critically important when attempting to maximize detection and minimize false alarms. Precise information regarding background radiation levels provides increased sensitivity to deviations resulting from the introduction of materials with very low radiation levels. Improved sensitivity is also required to identify dangerous targeted materials as well as medical related and other innocuous radiation sources. Sharing all information across the SmartShield network provides full situational awareness for all personnel.



## Advanced Capabilities

- Local SPRD Alerts when network down
- Hands-off Automated Operation & Notification
- Source Identification
- Source Location
- Source Tracking

NetS <sup>2</sup> SmartShield G300 Radiation Detector Specifications	
<b>Detector</b>	
Radiation Sensor	3.8 cm <sup>3</sup> CsI(Tl), Fully spectroscopic with PIN diode readout Bare PIN diode for low energy and high count rate environments
Energy Range	25 keV – 3000 keV
Resolution	< 7% at 662 keV
Dose Rate Range	Spectroscopic: 0.1 – 60 μSv/hr (full energy range) 60 – 3000 μSv/hr (< 200 keV) Total Dose Rate: 0.1 – 3000 μSv/hr (3 mSv/hr)
<b>Physical Characteristics</b>	
Size	28 mm x 74 mm x 127 mm with protective rubber overmold
Weight	Less than 250 grams with protective rubber overmold
Display	Smartphone: Touchscreen color display when synced with detector. Detector: Monochrome LCD
<b>Data and Communications</b>	
Communication	Bluetooth® wireless connection to external smartphone. Cellular connection to Reachback server.
Positioning	Assisted-GPS on Smartphone
Storage	Smartphone and Base Control Unit via the cellular network
<b>Power</b>	
Battery	Integrated, Rechargeable Li-Ion (Micro-USB 2.0 recharging port; up to 700 recharge cycles)
Operating Period	60+ hours (continuous) in surveillance mode
<b>Alarms</b>	
Gamma	Dose indication and isotope detection and identification (per ANSI N42.48)
Indicators (on-board)	Visual, Audio, and Vibratory
<b>Environmental</b>	
Temperature	-20°C to 40°C (-4°F to 104°F)
Shock	Drop test from 1.5m (per ANSI N42.48 section 9.2)
Humidity	0% to 95%, non-condensing

Specifications subject to change without further notice.  
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## Product Overview

The NetS<sup>2</sup> SmartShield system consists of radiation detectors and smartphones wirelessly connected via a cellular network to a server. The full power of the NetS<sup>2</sup> SmartShield system is realized when these detectors are integrated together by the server.

The smartphones provide a) computational capability for advanced detection, identification and localization algorithms; b) User Interface (visual, audio, and vibration); c) localization of detectors and radiological sources by GPS; d) cellular connection to a server.



G300 Radiation Detector and Smartphone with Base Control Unit

The server provides bi-directional communication to each node and the redistribution of information between nodes. Passport's Base Control Unit in this architecture is a node that has enhanced computational, visualization and communications capabilities. The complete sharing of information between the server, the Base Control Unit, and the detectors provides unprecedented detection and localization performance of radiation sources, continuous mapping of background radiation which increases sensitivity and full situational awareness at central command and control (also serviced by a server) and each node.



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