

SAMmobile 150 (RD-150) Vehicle Mounted Radiation Detection System (VMRDS)



Features

- Gamma-Ray Spectroscopy for Specific Nuclide Identification
- Neutron Detection (3He or Solid State)
- Bluetooth Communication to PAD and/or Tablet PC
- Up to 8 Hours of Operation
- Automatic System Calibration and Stabilization
- Database Protocol for Log Files and Alarm Events
- Water and Shock Resistant (IP 67)
- Integrated GPS with Mapping Function

Applications

- Emergency Response
- Law Enforcement
- Homeland Security
- Undercover Surveillance
- HAZMAT



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Description

The Model RD-150 Vehicle Based Radiation Detection System offers users a quick integration of spectroscopic nuclear detection capability in existing response vehicles. Large volume, highly sensitive gamma and neutron detectors are integrated into shock-absorbent packaging for reliable mobile monitoring. The unified monitoring system is scalable with multiple detector point options in your existing vehicles. Results in simple form, backed by full spectroscopic reports and identification details, are available to the vehicle operator in real time. Detector positioning enables optimized detection geometry for pinch points, freeway passing, lot scans or other clandestine monitoring requirements. The detector modules are tied to a comprehensive user interface running locally or remotely. Scalability of systems with this size and sensitivity is a first in the mobile detection industry.

The Model RD-150 comes standard with PeakGo, a PC-based software interface which conveniently illustrates isotope and isotope class-specific, color coded peaks and bar graphs. The app is free and included with all shipments of Berkeley Nucleonics' Nuclear Detection and Isotope Identification products. The rich feature set in PeakGo includes GPS Tagging, photo/video report appending, pop-up isotope help and 'Push-to-Reachback' functionality. In addition to PeakAbout, users may elect to integrate alarms or push-functions to existing communications and reporting systems.

System Hardware

At the core of the Model RD-150 is a high-performance MCA featuring DSP electronics and a high-voltage control system for optimum dynamic range. The digital processor is supplemented with an analog anode output to enhance timing functionality. The processor is a 32-Bit RISC with excellent data acquisition and processing functionality. The entire electronic module is packaged in a shock-reducing enclosure. The photomultiplier tube and NaI detector are matched prior to final hermetic seal to ensure that efficiency is optimized.

System Firmware

The data processing and management is extremely efficient and leverages several proprietary processing and post-processing techniques. A unique Wavelet Transform gives users a strong confidence level on a wide range of isotopes without being limited to a peak search in a Region of Interest (ROI). The concurrent background correction and background subtraction, two separate algorithm enhancements, give second-by-second analysis and unprecedented confidence. These enhancements are particularly useful with high-sensitivity (large volume) NaI detectors and moving applications where background shifts are common.

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System Software

In addition to powerful spectroscopic data analysis and reporting, the Model RD-150 in tandem with PeakGo gives users all the functionality they need. The full ANSI N42 report can be quickly examined, and then forwarded to a management team, reachback office, or a series of several incident support options. Users can capture pictures or video during data acquisition, allowing for a more complete spectroscopic report. Additionally, real time tutorials on an isotope-by-isotope basis are included with the RD-150. This focus on the larger application requirements further differentiates PeakGo and BNC's line of Nuclear Radiation Detection instruments

Application Software - PeakGO

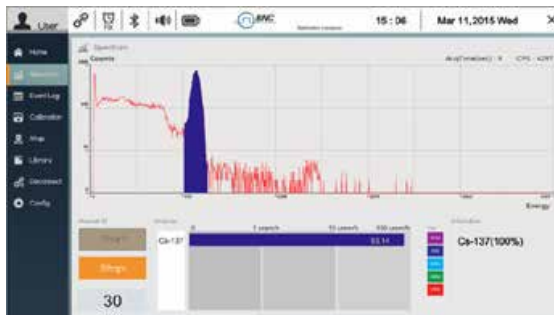
The PeakGO application software is compatible with any Windows platform. It graphically displays details about identified isotopes and a map derived from GPS data. Alternatively, an Android-based application software can be used for smartphone.



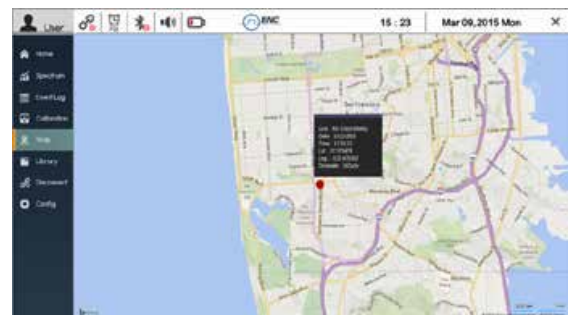
Main Screen



Event Log Screen



Spectrum Analysis / ID Screen



Map Screen

SAMMobile 150 Specifications

Input / Output	
USB	Micro USB 2.0
Bluetooth	Class 2.0,max 100m range (class 2)
GPS	Built-in GPS in a tablet PC or Smartphone
Physical	
Dimensions (W X D x H)	74 x 52 x 30 (cm)
Weight	44 lbs (20 kg) VMRDS-2G1 Model
Environmental	
Operating Temperature	5 to 122 F° (-15 to 50 C°)
Relative Humidity	10 to 80%, non condensing
Protection Rating	IP 65 (according to IEC 60529)
Performance	
Energy Resolution (Gamma)	Nal(Tl) 2 x 4 x 16 inch: >8% @ 662 KeV
Energy Range (Gamma)	20 Kev - 3 Mev
Throughput	> 150 kcps
MCA Channel	10 bit 1024 channel
Dose Rate Range (Nal)	0-10 mR/h
Dose Rate Range (GM)	10 Mr/h - 10 R/h
Stabilization	Automatic real-time
Nuclide Identification	According to ANSI N42.34, isotope/category/confidence report
Battery	>8 hours, Lithium Ion
Detectors	
Gamma Nal (TI)	2 x 4 x 16 inch - Standard, 4 x 4 x 16 - optional, up to 2 detectors / unit
Gamma (High Dose Rate)	Geiger-Muller detector (standard)
Neutron (optional)	Solid-state Neutron detector: 4 cm ² active area, 20% thermal neutron effect Gamma rejection: 1: 10 ⁷ , Tileable up to 20 detectors
Display	
Smartphone	Samsung Galaxy Player or equivalent
Tablet PC	Any Windows compatible tablet PC
Software	
Application SW	Android based application SW for Smartphone
Reach-back Feature	ANSI N42.42 event data via a Tablet PC or Smartphone

Detectable Isotopes	
NORM	K ⁴⁰ , Ra ²²⁶ and daughters, Th ²³² and daughters
Medical	F ¹⁸ , Cr ⁵¹ , Ga ⁶⁷ , Mo ⁹⁹ , Tc ^{99m} , Pd ¹⁰³ , In ¹¹¹ , I ¹²³ , I ¹³¹ , Xe ¹³³ , Sm ¹⁵³ , Tl ²⁰¹
Industrial	Na ²² , Co ⁵⁷ , Co ⁶⁰ , Se ⁷⁵ , Rh ¹⁰⁶ , I ¹³² , I ¹³³ , Ba ¹³³ , Cs ¹³⁴ , Cs ¹³⁷ , Eu ¹⁵² , Ir ¹⁹² , Am ²⁴¹
SNM	U ²³³ , U ²³⁵ , U ²³⁸ , Pu ²³⁹ , Pu ²⁴¹ , Np ²³⁷