Model 940 Radioactive Isotope Identification Device
Surveillance and Measurement (SAM)

Features:

- Completely portable isotope identification system in one hand
- Indentification of multiple radionuclides concurrently within one second
- Special Nuclear Material (SNM) detection, enhanced with integrated neutron detection option
- Spectra and user settings transfer easily to PC through CompactFlash card, Ethernet, or USB adapter
- Operates for over 6 hours on standard AA batteries

Model 940

Applications:

Emergency Response, Law Enforcement, Homeland Security, Undercover Surveillance, HAZMAT, Industrial, Medical, Radiation Safety, Passenger and Freight Monitoring, Non-proliferation Enforcement, Health Physics, Environmental Waste Monitoring, Unattended/Remote Monitoring

The SAM 940

New radioactive isotope identification instruments from Berkeley Nucleonics Corporation (BNC) offer specialized options for use in the health physics, law enforcement and homeland security industries. The SAM Defender (standard resolution) and SAM Resolver (high resolution) are portable radiation identification systems developed to provide simple operation for the first responder who needs to react quickly, as well as detailed analyses for the sophisticated technical user. Several modes of operation give all users the information they need right at their fingertips.

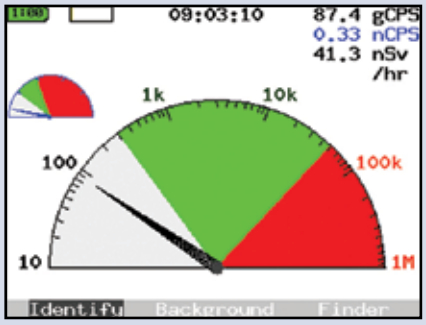
Detector Options:

The SAM systems offer several detector choices:

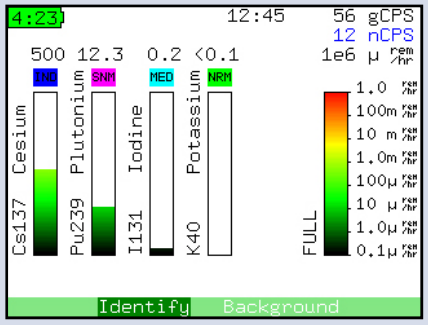
Sodium Iodide: For isotope identification, good efficiency and optimum price/performance, the Sodium Iodide option (NaI) gives users fast and accurate identification at an excellent value. The NaI option utilizes advanced algorithms to discriminate peaks and identify sources in real time.

Lanthanum Bromide: For the professionsal spectroscopist, an optional LaBr detector is available for the SAM system. This new material offers the end users a typical resolution of 2.8% at 662 KeV and ensures the spectroscopic reports have unparalleled analytical capability.

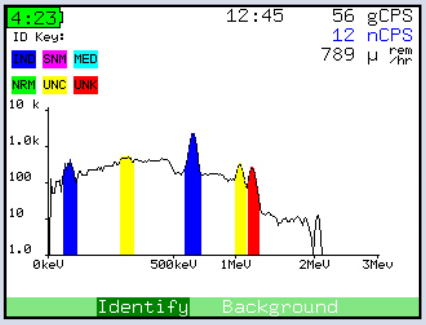
Lithium: For Sensitive Nuclear Material detection or safeguarding of WGPu, the Lithium (^{6}LiI) option for the SAM system allows users to alarm on neutrons and perform a variety of coincidence checks, comparing peak analysis with the presence of neutron radiation.



Quickly determines location of materials and where to collect data for further analysis.



Continuously displays detected isotopes, class, and dose rate for multiple source identification.



Color coded peaks depict source category, intensity, and stored data.

First Isotope Identifier RIID Designed After ANSI 42.34

For years, the Surveillance and Measurement System (SAM) family of instruments has been synonymous with high overall performance in a portable isotope identifier. The earliest SAM model was the first real-time radiation area monitor capable of isotope identification in one second. A later model was the first device to give field operators the ability to identify sources on the move without having to stop and hold position while the instrument collected data. BNC continues its legacy of technical progression with the release of the Model 940 designed in response to ANSI 42.34 (American National Standard Performance Criteria for Hand-held Instruments for the Detection and Identification of Radionuclides).

The systems offer a variety of Gamma Detectors and an optional Neutron Detector. A convenient Ethernet connection, CompactFlash card, USB adapter, or RS-232 ensure easy data storage, archive, or transfer. Spectral reporting is generated in XML compliant formats according to the ANSI N42.42 standard. An auxiliary port allows the use of application-specific third party hardware such as a GPS (global positioning system), Bluetooth data transmission, or wireless 802.11 / ZigBee protocol. The new compact, portable, and lightweight enclosure is ergonomically designed for single-hand operation which is ideal for downrange use or in hot zone environments. Whether your work involves emergency response, interdiction, or environmental clean-up, the new SAM Defender and SAM Resolver will deliver the most advanced tools available in a portable isotope identifier.

SAM 940 Features

1. **High Performance Gamma/Neutron Detectors**
   Choose from NaI, ^{6}LiI, or LaBr options
2. **IP56 Rated Enclosures & Cable Assembly**
   Ideal for field environments, rain, dust, vibration, etc.
3. **Battery Compartment**
   Uses standard or rechargeable AA batteries
4. **Handheld, Ergonomic Package**
   Reduces fatigue during extended field use
5. **Detector Retention Clip**
   Hot-swap detectors for various applications
6. **Workglove Friendly Soft-Keys With Tactile Feedback**
   Ideal for operators wearing PPE
7. **Ultra-Bright Transreflective 32000-color Display**
   Effective for outdoor, any-angle viewing
8. **Light-Weight System**
   4.5 lbs. with detector included
9. **Water-Resistant I/O Panel**
   Includes network ready connectivity, flash memory card, backup of ANSI compliant reports
10. **Auxiliary Port**
    Provides serial communication, GPS integration, AC power, third party applications
11. **Temperature Stabilized Detector Circuitry**
    With norm auto-calibration
12. **Stable Base Unit**
    Convenient for lab analysis or optional tripod mount for fixed geometry applications

BNC

SAM 940 Specifications

Essential Services

To address the complexity and benefits of using the SAM Handheld Isotope Identifier instruments, our team of health physicists and first responder trainers offer a variety of support services. From classroom exercises to onsite field testing, Berkeley Nucleonics has built an enhanced support architecture to give you application-specific solutions. We offer onsite and regional training programs, custom application development, and a robust reachback program that supports a range of radiation detection.

MODEL SELECTOR

940-2-G	SAM Defender	Isotope Identifier	2x2 NaI	7% Resolution
940-2-GN	SAM Defender GN	Isotope Identifier w/ Neutron	2x2 NaI, ^{6}LiI	7% Resolution
940-3-G	SAM Defender	Isotope Identifier	3x3 NaI	7% Resolution
940-3-GN	SAM Defender GN	Isotope Identifier w/Neutron	3x3 NaI, ^{6}LiI	7% Resolution
940-2-L	SAM Resolver	High Resolution Isotope Identifier	1.5 x 1.5 LaBr	2.8% Resolution

SPECIFICATIONS

Detector:	NaI, ^{6}LiI, or optional LaBr
Integrated Electronics:	Digital signal-processing MCA
Energy Range:	18 keV – 3 MeV
Controller Display:	320 x 240 high brightness 32000-color 3.5" transflective LCD display
Controller I/O:	10/100 Ethernet port and CompactFlash reader with USB adapter
Power:	8 standard AA batteries
Weight:	4.5 lbs. with 2" x 2" NaI detector and batteries
Dimensions:	12" L x 4" H x 5" W (excluding detector)
Water/Dust Resistance:	IP56
Temperature Range:	-20 to 50°C
Controls:	7-key custom keypad with one-thumb operation
Alarm:	Visual (on screen) and Audio (internal speaker or optional headphones)
Detachable Detectors:	2" x 2" or 3" x 3" NaI detector options, with or without Neutron detector Integral HV bias supply and optional LaBr detector
Patented Technology:	Quadratic Compression Conversion (QCC) allows for identification of mixed isotopes in one second
Hysteresis:	Provides 97% I.D. confidence level in 2 seconds
Optional Modules:	Serial GPS receiver for spectral report mapping, wireless communications
ADC:	Type: Base converter 14-bit pipelined-flash Conv. Modes: Linear 256, 512, 1024 QCC 256, 512 (U.S. Patent 5,608,222)
Calibration:	Automatic stabilization with temperature
Customization:	Modifications of isotopes and their associated energy lines, either in the field or using Microsoft Excel ® Essentially no limit to number of isotopes or lines Sound and language preferences can be changed
Library:	Standard N42.34 ANSI isotopes, ITRAP/IAEA list, medical, industrial, SNM, or user-defined lists
Functions:	Nuclide identification, spectrum analysis, dose rate calculation (rem/Sv), total dose, audible search tool, data logging

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