RADIATION SCANNER FOR CARGO CONTAINERS & TRUCKS

Model # RAD-10, -11CANSCAN

FEATURES:

- FAST SCAN
- NO MOVING PARTS
- NON-INVASIVE- **EXTERNAL SCAN** GIVES DETAILED INTERNAL INFORMATION
- DETECTS - ALL RADIOACTIVE MATERIALS, SOURCES & CONTAMINATION
- EXTREMELY WELL SHOCK MOUNTED
- MORE SENSITIVE & BETTER RESOLUTION THAN BIGGEST VEHICLE MONITORS
- CREATES MAP OF INTERIOR
- PIN-POINTS LOCATION OF RADIOACTIVE CONTRABAND
- ISOTOPE IDENTIFICATION OF 'HOT' SOURCES

Crane Mounted

SITUATION: Large numbers of loaded shipping containers pass through and are stored at seaports around the world. We need to know which containers, if any, carry Radioactive Materials. Entering and doing a manual search of large numbers of containers is not feasible for many reasons. The **RAD-10,-11CANSCAN** give highly detailed interior information from a Quick scan.

DESCRIPTION: 20 Detectors arranged in an 8ft. x 40 ft. array, gives **IMMEDIATE DATA** on possible radioactive content of the entire container volume.

METHOD OF USE:

1. **Detector Wall:** The Detector is a 40' long 8' tall wall of radiation sensors. A cargo container is placed within 3feet of the detector wall and parallel to it. Proximity sensors automatically start the measurement. Counting continues until container is removed, an operator stops the count, or count alarm is tripped by one or a combination of the 20 gamma channels or two neutron channels. Please see automatic data analysis discussion.
2. **Crane Mounted:** The Detector is mounted on a crane or spreader and views the container from the top (See Crane Mounted Figure). Mounting the detector directly on the gantry crane or on a secondary crane or lifter has advantages and disadvantages.
   Advantages:
   * All Containers are scanned (Not just 1%).
   * No additional Handling.
   *Extremely Well Shock Mounted.
   * Contraband Cargo spotted early.
   * Suspicious container can be separated easily.
   ***Reliable Detects CFR49-C Hazard Class 7 (Radioactive Material)**.
   Disadvantage:
   *Quick Scan Costs more than TA's "off-line **RAD-20CANSCAN**.
   * Installation may require Port approval.

Note: Patent Pending.

TA TECHNICAL ASSOCIATES
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SPECIFICATIONS:

Scanning Area: 40 ft x 8 ft

Overall Dimensions: **RAD-10CANSCAN:** 8 ft x 2 ft x 40ft Detector Wall.
RAD-11CANSCAN: 8 ft L x 1 ft W x 2 ft Tall - 2 each - Crane Mounted Style.

	RAD TYPE	SCINTILLATORS	RAD-10CANSCAN	RAD-11CANSCAN
Detectors:	**Gamma:**	20 ea 3” dia x 1” NaI(Tl)	YES	YES
	Neutron:	2 each 3” dia Scintillator	YES	YES
	Neutron Generator:	—	—	YES

Neutron Generator: In the **RAD-11CANSCAN** a Neutron Generator gives enhanced sensitivity to fissile materials.

Shielding: Shielding and Collimation is provided, but may be deleted for special light-weight version: **RAD-10LW**.

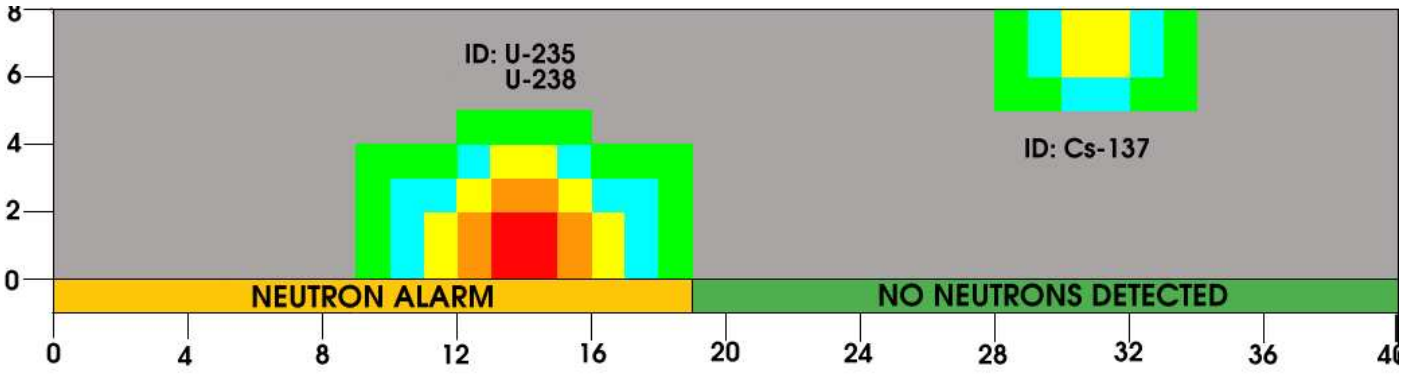
Electronics: Each detector has pre-amp and HV.

Isotope Identification: A Multi-Channel Analyzer applies Background Subtraction and uses Sophisticated algorithms to compare the output from the highest counting detector to the extensive pre-loaded Spectrum Library to achieve accurate Isotope Identification.

Location Mapping: The computer uses the detector data to overlay a virtual 4 x 20 grid onto the shipping container, with grid lines spaced every two feet. The visual display shows where the radiation emitting sources are Located on this grid.

Data Storage: All data is archived to the 100 Gig Hard Drive and automatically backed-up to CD.

Image of Container Interior Created By RAD-CANSCAN



RAD-10,11CANSCAN: 4 x 20 Grid Showing 2 Hot Spots, and identifying the isotopes, in this shipping container.

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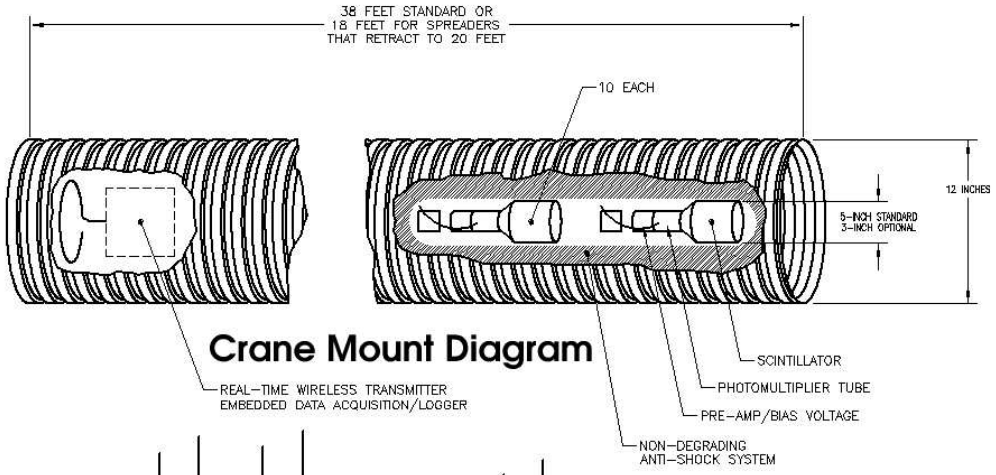
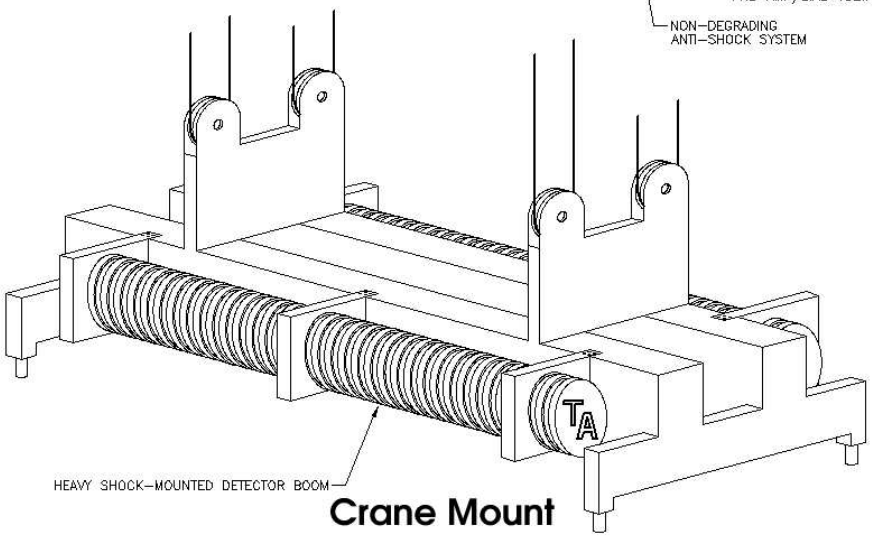
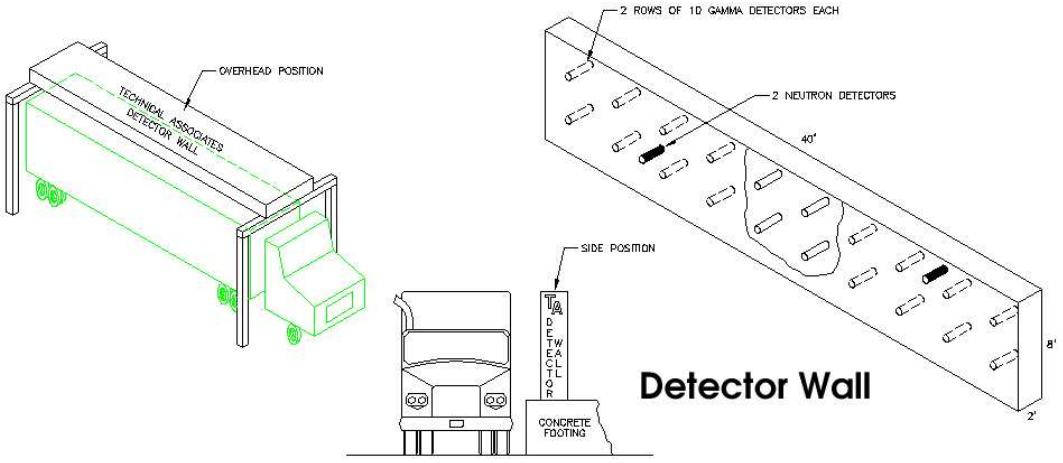


Crane Mount Diagram



Crane Mount



Detector Wall

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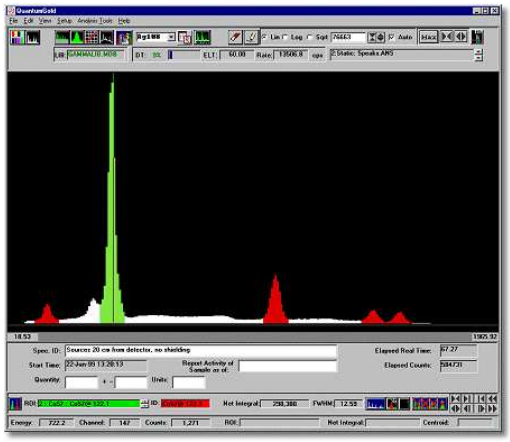
The Quantum Family of Software

Technical Associates has been a manufacture of accurate, easy to use Radiation Detection Devices Since 1946. Now TA can also provide complete gamma spectroscopy systems including analytical software. The Quantum Software packages have been designed to allow the spectroscopist to decide how an analysis is performed. Power and flexibility are the watchwords for these packages, which represent our latest advance in the fields of pulse-height analysis and gamma spectroscopy. QuantumMCA provides support for a broad range of hardware with tools for qualitative analysis. QuantumGold adds full function quantitative analysis for nuclear spectroscopy to the features of Quantum MCA. QuantumGeD includes both qualitative and full quantitative analysis features for germanium detectors only (i.e., no NaI(Tl) detectors and no QCC mode). QuantumGe is the same, but without deconvolution analysis. QuantumNaID has both qualitative and quantitative analysis for NaI detectors only. while QuantumNaI does not include deconvolution analysis. Each version is a full 32-bit Microsoft Windows® application, and will operate under Windows 95, 98, and NT version 4.0.



QuantumMCA is the basic MCA analytical package and is supplied with all TA multichannel analyzer instruments that require computer control. For sodium iodide-based gamma spectroscopy, TA offers the patented Quadratic Compression Conversion (QCC) (patent no. 5,608,222). It is implemented in the MCA2100R and MCA2100 gamma spectrometers. This signal processing technique gives spectra with consistent peak resolution throughout the entire range of detection. This makes spectrum analysis fast and easy.

The following are just a few of the features:

- Spectrum memory control for controlling the display of up to 8 spectra.
- Tool Setup for entering analysis parameters.
- Device configuration for establishing device communication.
- Setting and identifying ROIs.
- Analysis tools.
- Nuclide libraries.
- Quantitative analysis.
- QScript tool for automation.
- Analysis methods.
- Resolution and efficiency calibration.
- Quadratic Compression Conversion.

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