

ASM-345 C



Crane-Mounted
Radiation Detection
System

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Crane-Mounted Radiation Detection Systems

To maximize the overall probability of detecting shielded radioactive sources, monitoring materials for hidden radioactivity, while in its least dense form, should always be the focus of any radiation monitoring protocol. In an effort to provide complete radiation monitoring capabilities for every aspect of the material handling process, the world leader in radiation monitoring technology, developed the ASM-345 C Crane-Mounted Radiation Detection System.

The purpose of the Crane-Mounted Radiation Detection System is to detect the presence of radioactive sources while material is being handled by grapples or magnets.

In the metal recycling industries, intentionally or accidentally discarded industrial and medical sources can seriously contaminate a shredder, baler, steel melt or bag house. While these types of sources may be quite strong, the radiation is highly attenuated by the lead and steel housings in which they are encased. Crane-Mounted Radiation Detection Systems are designed to monitor the scrap metal while it is still in the scrap pile under the grapple or magnet, or on the grapple itself, and to prevent shielded radioactive sources from making their way into the steel making process.

Operating Principles

The Crane-Mounted Radiation Detection Systems operate in a dynamic scanning mode, actively monitoring radiation levels from the material being scanned and comparing it to the natural background radiation signature at any given time during the material loading and handling process. The detector assembly is mounted on the crane boom or can be mounted directly on a grapple to minimize the distance from the detector to the material being monitored.

Fluctuating background radiation levels are a significant factor in detecting a radioactive source because the levels of radiation emanating from a source may be substantially less than the fluctuations in normal environmental background radiation levels. Auto-adjusting alarm levels, based on exclusive Reality-Based Detection techniques, provide the ultimate in performance... maximum sensitivity and virtually no false alarms!

- Reality-Based Detection is the only radiation scanning technique for detecting extremely low levels of radiation with virtually no false alarms.
- Reality-Based Detection encompasses every measurement aspect; design quality, system setup, analysis and long-term stability.
- Reality-Based Detection includes a rigorous examination of all the unstable and uncertain factors that cause false alarms and eliminates or minimizes these factors.
- Reality-Based Detection includes Background Trend Analysis and Background Suppression Recognition. It corrects for fluctuating background radiation levels, radiation shielding and radiation energy loss within the detector.



Detector design/location does not affect material handling efficiency.



ASM-345 C Crane

Utilizing the same technology found in our safeguard monitoring equipment tested by the International Atomic Energy Agency, the ASM-345 C Crane-Mounted Radiation Detection Systems provide superior sensitivities with minimum false alarm rates compared with other crane-mounted systems. The shock-mounted, ruggedized detector assembly ensures long detector life, minimizing down-time, thus maximizing your production efficiency.



SIMPLE to operate and maintain, unobtrusive in normal operation.



EFFECTIVE performance, excellent detection with virtually no false alarms.



RUGGED, reliable operation in hostile environment.

Features

- Ruggedized detector assembly
- 3" x 3" Sodium Iodide NaI(Tl) detector
- Simple operator control – one button alarm acknowledgement
- Reality-Based Detection algorithm
- Superior sensitivity – maximum detection rate, minimum false alarm rate

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System Specifications

Functions

- Automated monitoring for radioactive materials

Sensitivity (¹³⁷Cs)

- 0.1 mR/h (1 μSv/h) exposure rate at 1 foot, detected at 1 meter
- 1 mR/h (10 μSv/h) exposure rate at 1 foot, detected at 3 meters

Detector Assembly

Integrated electronics

- Microprocessor-based

Integrated detector

- 7.6 x 7.6 cm (3 x 3") NaI(Tl)

Dimensions (w/cage)

- 362 x 330 x 118 mm (14.25 x 13 x 4.4")

Weight (w/cage)

- 84 kg (185 lbs)

Environmental

- Water and dust tight

Temperature range

- -20 °C to 50 °C (-4 °F to 122 °F)

Shock and vibration

- 1000 g

Energy range

- 40 keV - 2.5 MeV

Power requirements

- 24 VDC from crane

Operation

Dimensions

- 165 x 57 x 159 mm (6.5 x 2.25 x 6.25")

Power requirements

- 24 VDC from crane

Display

- Lamps and sounder

Operating system

- None required

Communication

- Shielded cable

Operator controls

- Power on/off (lockable)
- Red push-button alarm reset

Alarm annunciations

- Red alarm lamp
- Alarm sounder

Radiation alarm levels

- 2



Modular components allow easy installation and maintenance.



Simple operator functions allow quick confirmation of system's operational status.

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