RADIATION SOLUTIONS INC

RS-729

Grapple Mounted Radiation Detection System

Spectrometric Grapple Mounted Detector

The RS-729 is a wireless radiation detection system, specially designed to meet the challenging requirements for a Grapple mounted system typically used by scrap metal recyclers. RSI selected cesium iodide for the gamma detector and replaced the traditional large and fragile photomultiplier tubes with custom miniature Solid State arrays. This new compact design offers **the industry's highest sensitivity per detector volume** and minimizes the overall size of the components inside the grapple. The special design of the protective dome incorporates ceramic technologies from the space program to minimize the shielding effect and maximize sensitivity to low energy sources.

The compact detector is designed for **high durability** and is inherently more ruggedized than a detector design using fragile Photomultiplier tubes. The special protective dome design is tested by an independent laboratory to 137000lbs and withstands the force and impact of the daily operations.

The RS-729 system is auto calibrating and automatically adjusts to local background conditions resulting in an **easy to use** system. The Operator console is designed around a custom ruggedized smartphone with a 4.7-inch display with a simple and intuitive operator interface that users are familiar with today's smart phone technology.

The RS-729 system connects with the standard RSI DataCenter that is also used for all our industrial systems for **Real-time connection to RSO**.

APPLICATIONS

FEATURES

The RS-729 Grapple consists of **4 major components:**

- ✓ Detection unit with durable Protective Dome
- ✓ Controller
- ✓ Battery pack
- ✓ Ruggedized Read-out unit

Detector unit with protective dome

- Compact size that maximizes grapple capacity and does not affect the scrap handling operations
- The protective dome is designed to fit most mechanical, hydraulic or electro-hydraulic grapples
- The shape of the high strength dome protects the radiation detector inside and withstands the impacts of the daily operations
- High performance cesium iodide scintillation detector with 1024 channels spectrometer
- Enhanced sensitivity for low gamma energies
- Easy to install and service

Controller

- Very low power consumption
- Connects wireless to Read-out Unit

Rechargeable battery pack

- Removable Lithium ion battery pack
- Extremely long battery life

Read-out Unit

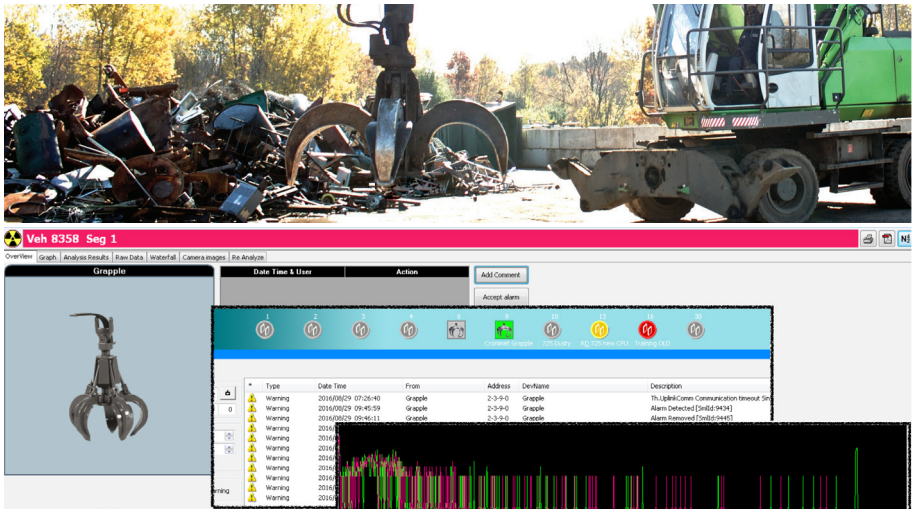
- Custom ruggedized smartphone
- User friendly, easy to operate
- Integrates with the RSI DataCenter
- Supervisory software capable

RS-729

Grapple Mounted Radiation Detection System

The RS-729 Grapple Mounted Radiation Detection System offers great flexibility in deployment on various types of grapples. The protective dome's base plate is welded onto the grapple center section and the protective dome is easily and quickly mounted onto the baseplate. All critical components of the system are specifically designed and enclosed to endure the constant impact of the daily operations in a scrap yard.

The Grapple Mounted detector uses a Cesium Iodide scintillation detector, which is a much denser material compared to PVT. Additionally the detector gets closer to a possible source and maintains contact for a longer period of time than traditional portal monitoring, thus providing accurate and reliable detection probability. The 1024 channel spectrometer is providing detailed spectral information, allowing for advanced analysis methods. In effect, the RS-729 outperforms traditional grapple systems.



The wireless capability of the smart phone includes Wi-Fi and a data-plan (not provided with the system) as alternative communication. The data is forwarded to the local RSI datacenter and integrated with other RSI systems such as portal monitors, charge bucket monitors or conveyer belt monitors providing the RSO with overview of all alarms of all systems

SPECIFICATIONS

Detection Unit

- High performance Cesium Iodide scintillator
- 1024 channel low power spectrometer

Protective dome

- Withstands the impact of daily use
- Special ceramic inserts for improved low energy response
- Mounted onto base plate

Base plate

- 11" diam. (280 mm) welded onto Grapple

Controller

- Ruggedized housing
- Special low power CPU board
- Integrated low-power Bluetooth
- Integrated motion detection

Battery

- Ruggedized Rechargeable Lithium ion battery
- Typically 3 – 5 weeks single charge battery life based on 8 hour daily operation and power saving mode enabled
- Quick charge, 4 hours charge time

Read out Unit

- Custom ruggedized smartphone
- Uses WiFi connection to customer LAN (data plan can be used as alternative)

Radiation Solutions Inc

Radiation Solutions Inc. (RSI) is specialized in nuclear instrumentation for the detection, measurement and analysis of low-level ionizing radiation from both naturally occurring and man-made sources.

RSI's cutting edge radiation detection technology incorporates a fully digital system design, spectral analysis and advanced data processing. RSI deploys this technology in fixed installed, airborne and mobile systems, portable and handheld spectrometers providing a level of quality previously only attainable in laboratory equipment.

RSI is committed to working as closely as possible with customers in all aspects of the product life cycle including product requirement, application, training, support and product enhancement. Our comprehensive approach results in hardware components and industry leading software techniques that produce outstanding results above expectations.

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