

## RS-200/6000 RADIATION PORTAL MONITORING SYSTEM



### 2 PMT Technology Base Detector Size 3000 in<sup>3</sup>

The RS-200 systems are 2 PMT based fully digital systems specially designed for the difficult operating conditions of scrap and aluminum processing plants. These systems combine exceptional performance with **minimum false and nuisance alarms** through advanced digital design and spectral analysis.

The system is **fully modular** which makes it easily configurable to suit local logistics and permits **fast, easy maintenance**. The system operates independently and has direct **Ethernet connectivity** to plant networks. This connectivity allows for a fully integrated plant design with the ability for RSO overview on all installed systems.



▲ RS-200/6000  
2 detector system

### The Complete Service Solution

The RS-200 system design incorporates many advanced ideas to make fast, easy, **local** maintenance practical. These features include – easy-open doors, latch-open doors on larger detectors, very rugged PMT mounts for reliability and easy access electronics tray with all electronics modules for fast changes. A major new feature is Internet based service support permitting the RSI Service Department direct overview for trouble shooting – in most case we can advise which module to change.

Once a problem is diagnosed replacement parts/modules are readily available, often with the option of overnight delivery.

### Features

- Detector volume: 3000 in<sup>3</sup> (24L)  
— maximum 16 detectors
- Fully digital system design - no user adjustments
- 2 PMT technology for high sensitivity + high noise rejection 10/sec data sampling rate for optimum data analysis
- Advanced 4096/128 channel spectrometer system for improved analysis
- Spectral analysis permits rejection of the majority of false, rain and void alarms prevalent in most systems without reducing system sensitivity
- Alarm classification to sort alarms into scrap and non-scrap categories for better control
- Minimum nuisance alarms due to advanced signal screening and pattern recognition
- System sensitivity analysis and auto correction to minimize signal loss with NO radioactive sources required to test system performance
- 15" color touch screen display for easy user interfacing
- Local printer for alarm printout
- GPS connection for accurate location and timing
- Direct connection to the plant network enabling RSO overview of all alarms on all systems
- Real-time (1/sec) error reporting to RSI service via the Internet for fast support and system overview
- 48V operation to minimize voltage drops on long cables
- Modular system design for easy on site service by local staff for "instant" service support
- 24/7 tech support for fast responsive support from technical people if required

[www.radiationsolutions.ca](http://www.radiationsolutions.ca)



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## System Specifications

### RSX-3000 DETECTOR



- VOLUME – 3024 in<sup>3</sup> (47L)
- SIZE – 61" x 31" x 7.2" (1524 x 787 x 183mm)
- Custom designed fully weather-proof box with detachable lid
- Fully DIGITAL system design for high performance and hi reliability
- PHOTO-TUBES (PMT) = 2 PMTs with low noise buffer amplifiers
- COINCIDENCE COUNTING = very advanced digital FPGA design for fast coincidence on all PMTs simultaneously giving very high noise rejection, high throughput and good spectral shape
- SPECTROMETER = 4069/128 channel spectrometer on EACH PMT permits accurate spectral analysis. This digital FPGA based spectrometer gives full spectrum 10/sec data sampling for analysis
- VEHICLE PRESENCE MODULE = FPGA based module uses 2 (with the option of 4) optical sensors with fast 500Hz resolution to permit accurate determination of vehicle speed and presence
- MODULAR = fully modular system design, 3 easy-to-change modules contain all system electronics and if any are changed it is Plug-and-Play with automatic parameter adjustment - no user adjustments
- Detector boxes are aluminum for non-corrosion and long life and fiber-glass lids to improve low energy performance
- SHOCK MOUNTS - each scintillator is specially shock mounted to minimize shock and vibration effects that shorten system life

### CONTROLLER



- Size = 14.7"H x 14.5"W x 3.9"D (373 x 368 x 99mm) - 115/220V AC operation 25 lbs (11.5 Kgs)
- CPU = high power custom designed Industrial embedded system gives high reliability over a wide temperature range
- NO system HARD-DRIVE all memory storage on solid state memory (8GB)
- OPERATING SYSTEM = the system runs Windows CE - this is a specially developed operating system for industrial systems which permits real-time operation
- Dust-proof, waterproof enclosure with internal heat sinking and no system fan for safe operation even in high dust areas
- CONNECTIVITY = Ethernet, USB, VGA and Serial connections for user interfaces

### STANDARD SYSTEM DELIVERABLES

- Detectors (2 standard – up to 16 optional) complete with 2PMTs each and modular electronics
- System controller
- 15" VGA color touch display
- POS impact printer for alarm summary
- GPS system for location and high resolution system absolute timing
- LAN switch for network connection
- RSI DataCentre (a black-box pre-programmed computer system to archive data from RSI systems to allow easy access for the local RSO as well as buffering data for Internet linked support) – only 1 supplied per plant as 1 system can support up to 8 RSI systems

### ADDITIONAL

- 2 pairs fast optical sensors
- 250ft (76m) cable – detectors to controller
- Installation manual (sent in advance) with appropriate stand drawings
- User, RSO, and Maintenance manuals included

### OPTIONAL

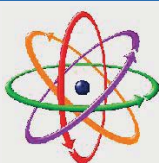
- Additional detectors (up to 16 optional)
- Additional 2 pairs of Optical sensors for improved precision
- UPS system
- TLC (Traffic Light Controller) system
- Detector spares kit (only 1 reqd/plant) to permit fast local service
- CABLE – additional cable as required
- START-UP services – RSI Staff on site visit to terminate detectors, startup system and train local staff

### CUSTOMER FURNISHED ITEMS

- Detector stands with suitable foundation and conduits
- Normal lightning protection to the detectors - recommended standard is NFPA780
- UPS (to RSI spec)
- Horn, traffic lights as required

### CUSTOMER PROVIDED CONNECTIONS

- LAN link - connection to the users LAN to permit RSO to view the data
- Internet link - users LAN permits Internet connection from RSI DataCentre to the RSI-service computer to allow proper level of RSO and maintenance support (technical details available)
- 115/220VAC connection - max 6A-115V, 3A-220V



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