

HS-RAM

The HS-RAM is a multitasking device designed for the detection and measurement of Gamma radiation in potentially exposed personnel.



It has 8 large-area plastic scintillation detectors distributed over walls, floor and ceiling, creating 8 sensitive areas (1 foot, 2 legs, 4 torso and 1 head) that work autonomously and independently, allowing simultaneous measurements with different levels of alarm.

Its management is fully automated. The equipment has sensors that detect when a person enters the portal, interrupting the background reading and automatically initiating a thorough examination of the person.

While it is not being used, the equipment is continuously updating the background level information in order to compensate the values obtained when a real measurement is performed.

It has screens, lights and acoustic indicators that warn the user of the presence of radioactive particles in case of contamination, or of significant variations in the background activity where it is located.

It is made of aluminum and steel painted for an easy cleaning and decontamination.

Detectors:

The type of detector that the HS-RAM equipment incorporates are plastic scintillators, with a sensitive surface of 500x500mm and a thickness of 50mm. Various tests carried out in our facilities confirm that larger detectors have a negative influence on the measurement results.

Each associated phototube has a BNC connector for the output and a SHV connector for the power supply.

The plastic (organic) scintillation detector consists of a shell of transparent material (plastic) doped with a sensitive organic molecule (POPOP: p-bis [2- (5-phenyloxazolyl)] benzene). The radiation is absorbed by the shell, mostly through the Compton effect, due to the low density and Z-value of the organic materials.

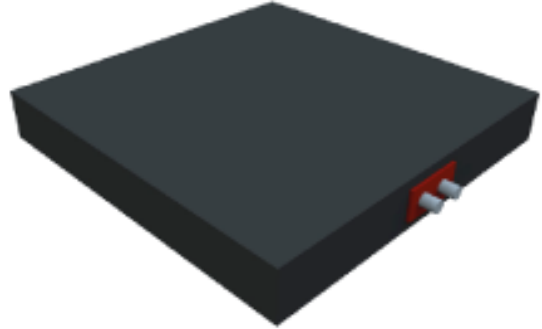
Characteristics:

Fast, low density and Z-value. High output power.

Applications:

Detection of particles. Gamma detection.

Each detector has its own HV source and electronics in order to separate the performance of each detector. This allows to disconnect a detector if malfunctioning is detected, keeping the rest of the equipment 100% functional.



Electronics and control (software):

The equipment has a 8 "color TFT touch screen that shows, in real time, all the values of background, object, alarms, etc., warning the user of the presence of radioactive particles in case of contamination or variations significant in the activity rate of the background where they are located.

No peripheral connection is necessary

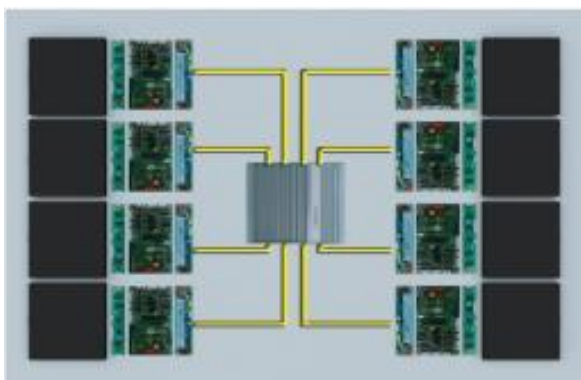
The management and control of HS-RAM v.3 equipment is carried out through the HS-RAD application, a powerful intuitive, flexible and scalable tool thanks to its modular structure.

The control of the electronics is performed by a rugged industrial computer



The computer centralizes communications with the controller cards associated with each detector. These manage the high voltage modules and pre-amplifiers and are responsible for the data acquisition task.

All the electronic adjustments, corresponding to the acquisition (thresholds, gain, high voltage, etc.), are made through the presence of digital potentiometers controlled from the tools available in the software itself. Detection of particles. Gamma detection.



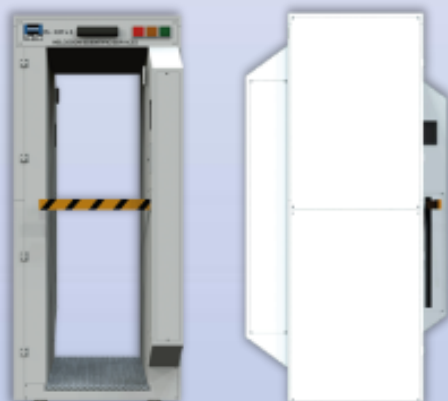
Area integration:

A zone can be defined from one or more detectors. As many zones as necessary can be created.

Each zone, which groups several detectors, will be considered as a single detector whose surface will be the sum of all the areas that integrate it.

The final result will also be taken as the activity integral of all the detectors.

The user can then define alarm thresholds independently for each established zone.



Calibrations:

The equipment can be calibrated to report activities. For this, a module is available to register patterns (calibration sources), which will be used in the calibration process.

Each zone is calibrated individually, and even different patterns can be used in each of them.



Features:

- 8 plastic scintillation detectors 50x50x5 cm each one.
- Additional NaI or CZT on request as optional.
- Less than 1000 Bq of Cs137 in Walk-through mode.
- Efficiency per detector > 25% (Co-60), > 12% (Cs-137), > 6% (Ba-133).
- 25mm thick lead shield (adjustable depending on the existing background).
- 1 touch screens TFT-Color 8 "of information and control.
- Operation modes: WALK-THRU, PAUSE, PAUSE-AND-TURN, FRONT-AND-BACK, etc.
- Dynamic automatic calculation of measurement duration.
- Sensors for automatic detection of people.
- Bidirectional operation.
- Record of events, backgrounds, measures, alarms, failures of operation, etc.
- Digital parameter adjustment. (without potentiometers or mechanical actuators).
- Integrated industrial PC (without maintenance) with Windows 7 /10 operating system.
- Includes calibration routines, verification and configuration (alarms, levels, gain, etc).
- It has two standard USB ports for data and historical dump in any support.
- Customizable software in all its functions and languages. Allows its remote operation (TCP / IP)
- External USB (memory stick, disk, etc.), as well as signal output for remote indicators of alarm.
- All software and documentation in Spanish.
- Includes tools and tools for transportation and positioning.
- Working temperature: from 0 to 50°C.
- Optimized design to facilitate maintenance.
- Fully adaptable according to each user's needs.
- Entirely designed and manufactured in Spain (100% guarantee of spare parts and maintenance)
- External dimensions of the equipment: 230cm x 99cm x 79cm (HxWxD). Can be customized.
- Inner dimensions of the measuring chamber: 200cm x 60cm x 76cm (HxWxD). Can be customized.
- Supply voltage: from 127 to 230vac

Alarms thresholds:

One of the most powerful tools that has the HS-RAD software is the configuration section of the alarm thresholds. This module allows you to create as many alarms (rules) as you wish, individually for each defined zone (group of detectors).



Access control:

The software includes access control routines to users, allowing to establish different levels of security to access certain sensitive options (calibrations, patterns, security options, electronic adjustments, templates, application closure, etc.).



In addition, it has a user control that stores the actions they perform next to the date and time.

Barrier configuration: Optionally, the system can be equipped with a barrier access control system.



File management:

All the data collected and reports generated by the application are accessible and exportable thanks to the file manager that it incorporates. It has automatic PDF document generator.

This tool allows you to copy all the data to an external device (USB) that connects to the USB port of the device.