

# GAMMASCAN<sup>®</sup> 2

**Gate monitoring system for radioactivity detection in a vehicles loaded with metal scrap or waste.**



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## DESCRIPTION

**GammaScan®2** is a system to be installed in all those plants which must detect the presence of a possible radioactive sources in the input material (eg. waste treatment plants, steel mills, foundries, storage sites ...). The gate monitoring for the detection of radioactivity **GammaScan®2** is a system that allows the detection of radioactive substances , if any, present in the load of a vehicle. The system consists of:

- two plastic detectors 25 liters each, of high sensitivity to 180,000 cps /  $\mu$ Sv / h for 137 Cs,
- lead shielding at the non-measurement sides,
- a complete processing unit equipped with lamps and audible alarm,
- a PC interface for configuration and management of the system,
- a printer, and, on request, a camera to record the license plate of passing through.

The system is usually installed at the entrance of the plant. As soon as the vehicle to be controlled cross the first barrier at the detector, the processor changes from BACKGROUND MONITORING to MEASURING mode. As soon as the vehicle exits the measurement zone by turning off both of the photocells, the system process the result, providing the operator with data to be printed or saved according to the requirements.

The system, in addition to the automatic measurement of the natural background with continuous updating of its value, is able to perform the automatic calculation of the reference background for each single passage of vehicles (this value is typically lower than that of natural background because of the shielding effect due to the presence of the vehicle passing between the detectors). The reference background of each single part the vehicle in transit (car, truck and trailer), is calculated too .

## COMPONENTS

1. N°2 large volume plastic scintillation detectors, 25 liters each, size 1.000 X500x50 mm, of high efficiency: more than 180,000 cps for 1 $\mu$ Sv/h ( Cs 137), energy range from 50 keV to 2 MeV. Built-in high voltage power supply and pre amplifier
2. Case in carbon steel and aluminum with lead shielding for background reduction
3. Photocell for entry and exit speed measurement
4. Microprocessor processing electronics complete with lights and acoustic alarms
5. PC interface for management and print-out of reports
6. Multi-language easy software
7. Camera for automatic acquisition of the license plate of the vehicle in transit (optional)



**SOFTWARE SELECTABLE  
IN DIFFERENT LANGUAGE**



**CAMERA FOR AUTOMATIC  
ACQUISITION OF VEHICLE PLATE**



**SPEED CONTROL**



## FEATURES

- Free setting of the alarms thresholds
- Evaluation of the inlet/outlet and pass through vehicle speed
- Determination of the truck direction (Monitoring is done with vehicle passing in both directions)
- System is able to automatically monitor both the truck and the trailer with separate alarm thresholds

## ALARMS

- Alarm for exceeding the inlet speed limit;
  - Alarm for exceeding outlet speed limit;
  - Alarms for radioactivity limit exceeding: The analysis is applied to all the sections of the examined truck, including the end parts of the vehicle where often a lot of equipment are not reliable, thus increasing the probability to detect a radioactive source;
  - 1<sup>th</sup> level alarm: evaluated according to the reference background (i.e.: the background calculated by the system when the truck face the detectors)
  - 2<sup>th</sup> level: referred to the natural background value (useful in some special application);
  - 3<sup>th</sup> level: referred to preset value of radioactivity;
- 1<sup>th</sup> and 2<sup>th</sup> alarms are calculated for each single detector as well as for the sum; the sum of both detectors allows increasing the chance to detect a source placed in the center of the vehicle;
- 2<sup>th</sup> and 3<sup>th</sup> alarms are calculated in real time.
- Three different alarms for natural background measurement (min, max and differential)  
Alarm for detector fault.
- Possibility, using display indications and analysis software, to evaluate with reasonable accuracy the position of the source within the vehicle.
  - All the operation parameters can be adjusted according to the specific request of the customer.
  - Graphic presentation of the activity measurements with the indication of the data related to the measurements, like background reference, max measured value, start/stop measurement, position of the source and type of alarm.
  - Status and alarms are confirmed by a light tower located above the measuring electronics.
  - All the measurement are saved, analyzed and controlled by special software.
  - The system does not start the measurement at passage of pedestrians
  - An SQL Data logger allows the research of saved measurements according to the date, plate, results.....
  - The print-out can be set in automatic or manual mode.

## CUSTOM CONFIGURATION



## INSTALLATION



With more than 30 years of experiences on industrial field for radiometric equipment, italmisure Srl, now Berthold Italy, is able to support all the customer that are looking to find the best customize solution for radiometric measurement.



Different configurations of detectors, probes and systems for, search and detection of radioactive sources. Manual monitoring of ambient radioactivity, test of metal samples and contamination measurements with identification of the radionuclide. Pass-through portals for trucks and / or trains. Radioactivity monitoring system for installation at conveyor belts, buckets or magnets and measurements on pipes.



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RADIO PROTECTION

