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Fast and reliable detection of radioactive sources

SGS II Radiation Conveyor Monitoring System

ThermoFisher SCIENTIFIC

SGSII Conveyor System

Thermo Scientific™ Safety-Guard Series II™ (SGS) Radiation Conveyor Monitor System offers fast and reliable detection of radioactive sources inside packages or cargo that is being transported on a conveyor belt system. Radioactively contaminated material and concealed radiation items can be detected by means of the gamma or neutron radiation emitted.

Features

- **High Gamma and Neutron sensitivity:** Our special algorithms enable the SGSII radiation conveyor monitoring system to meet the more stringent ANSI N42.35 Detection Standards of gamma nuclides and for neutron detection.
- **Natural Background Reject (NBR):** Immediate discrimination between naturally occurring radioactive material (NORM) and artificial radiation via Natural Background Rejection. NBR results in enhanced sensitivity especially in high NORM background environments.
- **Advanced Digital Filtering (ADF):** This algorithm is used in conjunction with the NBR algorithm described above. It attenuates fluctuations in the measurement level, responds rapidly to change, and self-adapts to the statistical significance of any count rate increase. The use of ADF decreases the incidence of false alarms due to natural statistical fluctuations.
- **Response time:** The gamma detectors measure at a time basis of 200 ms, and the display is updated every second. Indication of radiological alarms is immediate and displayed on the user interface and the Power Control Alarming (PCA) Module. An additional LED Warning Light Tower may be installed at another location, providing an audible alarm that can be heard in noisy environments.
- **Adaptable configuration:** The configuration can be adapted to specific customer needs by the Windows PC program SGS2.exe. A total number of 20 radiation measuring channels can be configured to match a variety of demands and scenarios.
- **Extended use:** Modified software version 2.1.1 allows the user to disable the SGSII radiation conveyor monitoring system when the system isn't in use to prevent nuisance alarms from radiation sources. This new feature is an alternative to shutting the system down, where the SGSII radiation conveyor monitoring system will continue to process the background to obtain the most up to date background when the bypass mode is enabled.
- **Stored data:** The measured values for each alarm as a function of time can be stored. For evaluation purposes, the alarms are graphically displayed on the PC with the option to print the data for further analysis.
- **Remote monitoring & reporting:** When connected to a network or using the optional Cellular Modem Kit, the SGSII radiation conveyor monitoring system can send data in virtual real time to local or remote servers utilizing Thermo Scientific™ ViewPoint™ software. This data feed can be used to create custom performance reports, email and text notifications. Remote monitoring of system performance is also available.



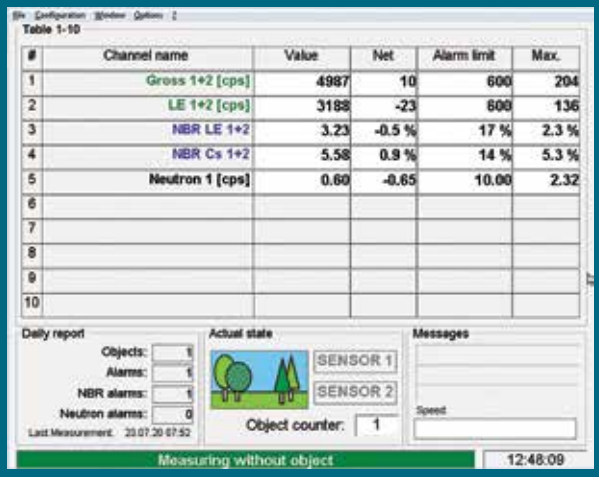
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Components

- Detector Assembly(s)
- Box PCII Controller
- PCA Module
- Electrical cabling (optional)
- LED Warning Light Tower (optional)
- Cellular Modem Kit (optional)

Detector assembly

- Protects the radiation detectors and associated electronics from environmental effects
- Provides measurement data and status information to the control computer (Box PC II)







Box PCII (indoor device only)

The Box PCII, shown in does the following:

- Collects and displays measurement data and status information from detector electronics
- Processes measurement data and performs radiation alarm analysis
- Allows off-site systems to download measurement data and status information.
- Allows off-site systems to perform service routines and change parameter settings.

PCA Module (indoor device only)

The Power Control Alarming (PCA provides visual indicators of system function, audible alarms, and a means to acknowledge alarms. All communications between the SGSII radiation conveyor monitoring system and the Box PCII are routed through the PCA Module.

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Specifications

SGSII 1200 Models		
System Details	**SGSII 1200GN1_2S**	**SGSII 1200GN1S**
Detector Panels	2 (one panel on each side of the belt)	2 (one panel on each side of the belt)
PVT Scintillator	2 (one PVT Scintillator in each panel)	2 (one PVT Scintillator in each panel)
PVT Scintillator Size	26" X 11 1/8" X 2"	26" X 11 1/8" X 2"
Neutron Detector	1 (one neutron detector in one panel) **Standard model for majority of locations*	2 (one neutron detector in each panel) **Model for locations with high neutron background*
Neutron Detector Size	22" long X 2" dia. ^{3}He tube	23" long X 2" dia. ^{3}He tube

Detector specifications

SGSII 600 G/GN1: Conveyor Detector specifications			
Specification	**Detector Cabinet**	**Gamma Detector**	**Neutron Detector (if installed)**
Size	H X W X D 82 X 61 X 24 cm (32.3 X 24 X 9.3 in)	H X W X D 66 X 28 X 5 cm (26 X 11.2 X 2 in) 9.2 liter (582 in^{3})	Length: 58.5 cm (23 in) Dia: 5 cm (2 in) 1.1 liter (72.3 in^{3})
Material/Detection Material	Aluminum Enclosure with 1/8" thick lead on back, top, bottom and sides.	Polyvinyl Toluene	^{3}He Gas
Detector Assembly Weight	~ 87 Kg (~191 lbs)		
Ambient Temperature Range	-40 C° – +60 C° (-40 F° – +140 F°)	-40 C° – +60 C° (-40 F° – +140 F°)	-40 C° – +60 C° (-40 F° – +140 F°)
Humidity	up to 99%	up to 99%	up to 99%
Detection Range	N/A	≥ 30 keV	At or greater than thermal energy (≥ 0.025 eV)
Detection Sensitivity	N/A	1. Co^{57}: 200,000 cps/µSv/h 2. Cs^{137}: 60,000 cps/µSv/h	140 cps/n/s/cm^{2}

Support Services:

Field Service
Field Service is available to our customers on a global scale. Field Service Plans are designed for customers who require on-site service or when Depot Service is not available. For the SGSII radiation conveyor monitoring system, the most common services include commissioning and preventative maintenance, as well as on-site and remote system repair.

Extended Warranty Plans
We also offer an array of extended warranty plans. These plans can cover parts, labor, on-site repair and remote support. The available warranty plans provide you with confidence that the system will have the maximum amount of uptime to support your operations.

Remote Monitoring
Our customized integration services provide customers with tailored solutions based on the specific need and application. ViewPoint Enterprise Remote Monitoring centrally processes and analyzes data from radiation detectors to provide a complete picture of your environment. For the SGSII radiation conveyor monitoring system, remote monitoring capabilities include instrument monitoring, comprehensive instrument integration, reporting, data analytics, and remote upgrades.

Find out more at **thermofisher.com/radiationmeasurement**

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