SARA ENVINET

SARA – Spectroscopic Detection System

In applications involving radioactive materials, advanced monitoring technologies are integral for achieving precise and reliable measurements to protect population and environment. SARA, the Spectroscopic Radiation Monitoring System from Scienta Envinet, delivers such accurate gamma radiation data. Among others, it serves supervisory authorities, industry, healthcare and energy production. By employing spectroscopic acquisition methods, SARA ensures elevated data accuracy, thereby facilitating operational efficiency and regulatory adherence.

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SPECTROSCOPIC DETECTION OF GAMMA RADIATION

In 2009, the introduction of SARA marked the beginning of a new era in radiation monitoring. Today, the continuously improved, innovative product series sets the standard for the spectroscopic online monitoring of the ambient gamma radiation in air. It meets all requirements for unrestricted, resilient automatic remote monitoring under the harsh operating conditions of continual outdoor use anywhere in the world.

APPLICATIONS

The modular design allows to customize SARA for a wide range of applications, from stand-alone deployment right through to large-scale complex monitoring networks.

For example, SARA supports the following applications:

- Ring monitoring systems around nuclear facilities
- Nationwide monitoring networks
- Area monitoring
- Laboratory and system monitoring
- Short-term measurements at varying sites
- Transport monitoring
- Civil defense and disaster control

FEATURES

Utilizing the spectroscopic ability, SARA's detects extremely low levels of artificial radiation in the environment rapidly and automatically:

- Continuous acquisition of the gamma spectra
- In-situ isotope identification and nuclide-specific dose rate determination
- Isotope-based alarm management
- Advanced specroscopy with NMC: deconvolution, FSA and AI-based nuclide identification
- Nuclide-specific dose rate determination
- Calculation of the gamma dose rate and specific activity
- Data exchange according to ANSI N42.42 (XML based)
- Precipitation detection from the spectrum
- Quick and easy to install and commission
- Designed for use in extreme weather conditions
- Low maintenance effort

Spectroscopic Gamma Detector

Fixed Spectroscopic Monitoring Station

Deployable Spectroscopic Monitoring Station

Autonomous Spectroscopic Monitoring Station for low solar insolation

SCINTILLATION DETECTOR FOR EACH APPLICATION

Depending on the use-case and application, the most appropriate scintillator types and sizes are available, for example:

Material	Resolution	Deconvoluted*	Benefit
$CeBr_3$	4%	<3%, up to 0.8%	Low intrinsic background
NaI(Tl)	7%	<5%, up to 2.5%	Cost-effective
$LaBr_3(Ce)$	3%	<2%, up to 0.4%	High resolution

HIGH DOSE RATE SPECTROMETER

High dose rate spectrometer HD-Spec is a compact system that can measure and analyse the gamma spectrum up 100 mSv/h. The spectrometer is integrated in the SARA detector housing and can be combined with the optional GMT to extend the dose rate measurement range even further up to 10 Sv/h.

COMMUNICATION

SARA by default comes with a variety of internal communication interfaces, e.g. LAN, WiFi and RS232. In addition, LTE/GPRS is available internally in the detector unit, as well as digital radio, RS485, DSL, satellite and LP-WAN in the base station.
SARA can be easily configured and operated through an integrated web interface.

*Requires NMC with DAISY module

MODELS AND APPLICATIONS

Spectroscopic Gamma Detector
Single application with 12 VDC power supply

Spectroscopic Fixed Monitoring Station
Pole or wall mounting with mains power supply, or as completely autonomous station with solar panel and battery.

Deployable Spectroscopic Monitoring Station
Quick deployment for incident response, battery powered

BENEFITS

- Early detection of extremely low levels of artificial radiation in the environment
- Improved early warning function due to rapid detection of nuclear incidents
- Automated nuclide identification to facilitate necessary countermeasures
- Low total cost of ownership:
  - affordable purchase cost
  - easy installation and high level of automation
  - no consumables or wear and tear
  - remote configuration and monitoring

ENVINET RADMON

Go one step further with ENVINET RADMON: Radiation monitoring, communication and software maintenance for a worry-free network operation as a single package.

EVOLUTION

SARA's success story continues with constant improvement, of hard- and firmware:

- **Optimized probe glass fiber housing for low energy gammas**
- **Integrated LTE and GPS antenna**
- **Three-user configurable aggregation intervals from 5 seconds up to user needs**
- **Optional high dose rate spectrometer up to 100 mSv/h**
- **Integrated WiFi for wireless servicing**
- **Spectrum-based precipitation identification**

Optionally available: SARA Base Station Fixed with display and LEDs. SARA Tablet as part of the test set for detector verification.

IN USE AROUND THE WORLD

Since 1985, our customers have been relying on Scienta Envinet's solutions for monitoring environmental parameters with more than 5,800 stations.

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