TUNA ENVINET

TUNA – Spectroscopic Detection System for Water Monitoring

TUNA is the versatile solution for spectroscopic monitoring of gamma radiation in water, for surface and deep water, for fresh and salt water. TUNA detects very low concentrations of artificial nuclides, thereby allowing contamination to be identified rapidly and effectively. This applies to installed monitors as well as temporary monitoring.

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UNDERWATER GAMMA SPECTROSCOPY

TUNA is built on Scienta Envinet's state-of-the-art SARA platform, a continuously improved, innovative product series that sets the standard for the spectroscopic online monitoring of gamma radiation in the environment. It meets all requirements for unrestricted, resilient automatic remote monitoring under the harsh operating conditions of continuous outdoor use.

APPLICATIONS

The modular design of TUNA allows for a wide range of applications, from stand-alone deployment right to the integration into large-scale complex monitoring networks. For example, TUNA supports the following applications:

- Stationary river monitoring
- Nuclear and medical facility effluents
- Transboundary river monitoring
- Mining and remediation
- Wastewater and sewage treatment plants
- Drinking water monitoring
- Surface water drinking supply
- Desalination plants
- Stationary sea water monitoring, harbours
- Sunken submarines and nuclear waste
- Short-term measurements at alternating sites

FEATURES

Utilizing the spectroscopic ability, TUNA detects extremely low levels of artificial radiation in water rapidly and automatically performs:

- Continuous acquisition of the gamma spectra
- In-situ isotope identification
- Isotope-based alarm management
- Nuclide-specific concentration determination
- Advanced spectral analysis with NMC: Deconvolution + FSA
- Data exchange according to ANSI N42.42 (XML based)
- Quick and easy to install and commission
- Designed for use in extreme weather conditions
- Operation depth for water detector up to 500 m (standard version) or deep sea (customized)
- Little maintenance needed, mostly cleaning from fouling

Spectroscopic Gamma Detector TUNA with base station

Spectroscopic Deep Sea Gamma Detector TUNA with mobile base station

Accessories:
Mobile base station, transporting solutions for standard- and deep-sea detectors, test- and verification equipment

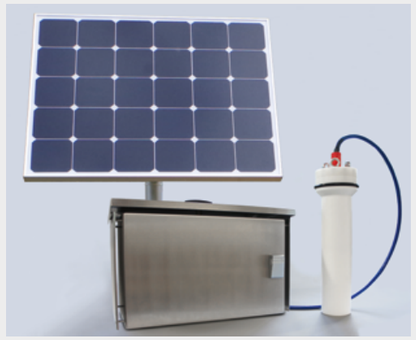
MODELS AND APPLICATIONS

Housings:

- The standard housing is designed for fresh and salt water and supports up to 500 m depth. Online monitoring is possible down to 50 m.
- The deep sea housing is customized according to the actual use case up to several thousand meters of depth

Base stations:

- Fixed cabinets for stationary use are available with mains power and LAN connection, or as autonomous solution with solar power and LTE.
- Mobile base stations for short-term measurements are equipped with GPS, LTE and battery.



TUNA fixed base station for fully autonomous operation using solar, battery and LTE.

SCINTILLATION DETECTOR FOR EACH APPLICATION

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

Material	Resolution	Deconvoluted	Benefit
$CeBr_3$	4%	<2.5%, up to 0.8%	High resolution
NaI(Tl)	7%	<4%, up to 2.0%	Cost-effective

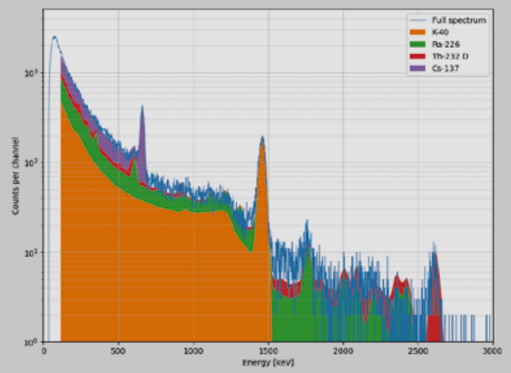
The spectroscopic dose rate range can be extended using the unique HD-Spec solution. An optional internal Geiger Mueller Detector increases the total count rate range up to the equivalent of 10 Sv/h.

BENEFITS

- Early detection of extremely low levels of artificial radiation in water
- Improved early warning function due to rapid detection of contaminations with advanced spectral analysis
- Automated reliable nuclide identification even in complex cases with FSA (e.g., Pb-214 and I-131)
- 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

ADVANCED DATA ANALYSIS WITH NMC

Get the most out of your TUNA by leveraging the full spectrum analysis (FSA) and deconvolution capability of NMC. These technologies can increase the peak sensitivity of your TUNA up to a factor of 15 and improve the resolution by a factor of 3. Of course, the benefit of using NMC extends far beyond that, offering: Alarming, time series, status and communication analysis, station management etc.



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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www.scientaenvinet.com

EUROPE:

ENVINET GmbH
Hans-Pinsel-Str. 4
85540 Haar (Munich)
Germany
+49 89 456657-0
info@scientaenvinet.com

Scienta Sensor Systems AB
Danmarksgatan 22
753 23 Uppsala
Sweden
+46 18 4805800
info@scientaenvinet.com

US:

Scienta Omicron, Inc.
3222 E. 1st Ave, #521
Denver, CO 80206
United States
+1 901 538-1258
sales.us@scientaenvinet.com

CHINA:

Scienta Omicron (Beijing) Analytical Instrument Co., Ltd.
Room 12C5, Building No. 2
No. 1 Xizhimen Street
Xi Cheng District,
Beijing 100044, China
+86 010 58301883
sales.china@scientaenvinet.com