Leading in Environmental Radiation Protection

SIRA – SPECTROSCOPIC AEROSOL MONITORING STATION

SIRA is Scienta Envinet's flexible aerosol monitoring system for numerous applications. SIRA combines the strength of the SARA Spectroscopic Gamma Detector with a world-leading aerosol sampler technique into a Spectroscopic Aerosol Monitoring Station.

SIRA can detect even minor changes of radioactive nuclides in air by collecting them on a suitable filter and analyzing the gamma radiation. This significantly improves the recognition of artificial isotopes and thereby the performance of early warning systems for radiation. Besides the fast detection of artificial radiation, SIRA can also directly identify the nuclear isotopes. It is designed for indoor and outdoor use, even in harsh environments and for continuous operation with almost no maintenance. The $CeBr_3$-based scintillation detector provides high energy resolution under ambient temperature operation conditions. Alternatively, an NaI(Tl) detector can be employed. SIRA features online isotope identification and versatile data exchange through several interfaces. The integrated web server facilitates easy data access using a web browser. Nuclide-specific gamma activity measurement is calibrated according to volume activity (Bq/m^3).

FEATURES

- Fast detection of very low artificial radiation
- Online spectrum analysis
- In-situ isotope identification
- Standardized data protocol ANSI N42.42-2012 (XML-based)
- Accurate flow control
- Size filter magazine: 60
- Automatic filter change
- Single-filter post analysis possible (e.g. for alpha spectroscopy)
- Operation under harsh environmental conditions (field housing)
- Easy to maintain
- Easy and quick set up
- Detector verification supported automatically with optional test set
- Optimized lead shielding
- Very low power consumption

FUNCTIONS

- Nuclide identification
- Nuclide specific volume activity evaluation for each spectrum
- Three user configurable aggregation intervals
- Freely configurable nuclide library
- Isotope based alarm management
- Integrated detector accuracy test
- Nonvolatile memory for 3 years of data or more
- Data access and parameter setting with web browser
- Characteristic limits of peak/nuclide analysis according ISO11929

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PERFORMANCE SPECIFICATION

	Unit	SIRA – Spectroscopic Aerosol Monitoring Station	
Compatible detector		$CeBr_3$ 2" × 1.5"	NaI(Tl) 2" × 1.5"
FWHM (guaranteed)		Typ. 4.0% (<4.5%)	Typ. 6.5% (<7.8%)
Energy range	keV	30…3000	
MCA		8192 channels (2048 used), 14 Bit ADC, 40 MSPS sampling rate, digital filtering	
Detection limit (1h)	Bq/m³	Approx. 0.6 (Cs-137), 0.9 (La-140)	
Flow rate	m³/h	0.3 – typ. 5.7	
Filters		d=47 mm, flow area d=40 mm, individually exchangeable	
Size filter magazine		60 (other on request)	
Volume flow control accuracy (20°C)		< 2% (24h), <5% (momentarily) (depending on conditions)	
Mean life cycle suction unit		< 16 000 h	
Negative pressure	mbar	Max. 800	
Heating		Inlet heating / indoor heating / reserve heating	
Operation temperature	°C	-10…+50 (indoor), -20…+50 (outdoor)	
Air temperature	°C	-30…+50	
Protection class base unit		IP50 (indoor) / IP54 (outdoor)	
Lead shielding thickness	mm	16, optimized	
Humidity	%	0…95 with interior heating	
Power	W	Typ. 180	
Supply voltage		110 V / 230 V AC	
Depth (without foot)	mm	approx. 204 (indoor) / 235 (outdoor)	
Width	mm	approx. 448 (indoor) / 526 (outdoor)	
Height (without inlet)	mm	approx. 922 (indoor) / 1000 (outdoor)	
Weight	kg	approx. 53-66 (depending on configuration)	
Communication interfaces		Ethernet LTE (optional) Other on request	

ORDERING INFORMATION:

	Sampler / housing
SIRA-80I-7	Indoor / Container
SIRA-80F-7	Field / Outdoor

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	Detector type
SIRA-107	NaI(Tl) 2"x1.5"
SIRA-127	$CeBr_3$ 2"x1.5"

ACCESSORIES & ADDITIONAL FUNCTIONS

SIRA-400-4: LTE Communication
SIRA-400-A: DSL Communication

SIRA-800-0106: Test set Cs-137 (<10 kBq)

SIRA-800-0600: Filter paper (200 pc.)
SIRA-800-0610: Filter holder (30 pc.)

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