



SARA – SPECTROSCOPIC GAMMA DETECTOR

This self-contained spectroscopic in-situ gamma detector is designed to measure and analyze online and continuously the gamma spectra under environmental conditions. SARA is able to detect even minor changes of the composition of the nuclear spectra in the environment. This improves significantly the recognition of nuclide isotopes, which is very important for the radiation early warning system.



The SARA supports the quick detection of radiation but it also identifies the nuclear isotopes. The SARA unit is designed for outdoor use even in harsh environments and for continuous operation without any maintenance. Hermetically sealed detector unit guarantees optimal protection for the detector and the electronics against environmental conditions.

The optional detection crystals NaI(Tl), CeBr₃ or LaBr₃(Ce)-based scintillation detector together with the MCA (multi-channel analyzer) provide high energy resolution under ambient temperature operation conditions.

The standardized ANSI N42.42 protocol enables the use of many spectra evaluation software programs. SARA measures the total and nuclide specific gamma dose rate in units of the ambient dose equivalent rate H*(10).

For an extended gamma dose rate range an additional Geiger-Müller-detector (GM) or a high dose rate spectrometer can be integrated as option.

FEATURES

- Fast detection of very low artificial radiation
- Online spectrum analysis
- In-situ isotope identification
- Standardized data protocol ANSI N42.42-2012 (XML-based)
- Embedded PC with LINUX provides ultimate flexibility
- Operation under harsh environmental conditions
- Absolute unattended operation
- Easy to maintain - neither consumables nor wear parts
- Rugged design (IP 68)
- Easy and quick set up
- Detector verification supported
- automatically with optional test set
- **Optimized glass fiber housing for low gamma energy**



Portable



Underwater housing

The SARA Gamma SPECT detector be used in various applications for quick set-up in the field, including underwater measurement detector arrangement.

Call us to meet yor environmental monitoring requirements



Fixed Mounting



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	Unit	SARA-121	SARA-122	SARA-123	SARA-101	SARA-103	SARA-111	SARA-112	SARA-110
Spectroscopic detector									
Material		CeBr ₃	CeBr ₃	CeBr ₃	Nal(Tl)	Nal(Tl)	LaBr ₃ (Ce)	LaBr ₃ (Ce)	LaBr ₃ (Ce)
Size	Inch	1.5x1.5	2.0x2.0	1.0x1.0	1.5x1.5	3.0x3.0	1.5x1.5	2.0x2.0	1.0x1.0
Dose rate range ¹	μSv/h	0.001...360	0.001...180	0.001...80	0.001...100	0.001...80	0.001...360	0.001...180	0.001...80
Accuracy	%	+/-10	+/-10	+/-10	+/-10	+/-10	+/-10	+/-10	+/-10
Energy resolution ¹	FWHM (guaranteed)	typ. 4.0 % (<4.5 %)	typ. 4.0 % (<4.5 %)	typ. 4.0 % (<4.5 %)	typ. 6.5 % (<7.8 %)	typ. 6.6 % (<7.8 %)	typ. 2.8 % (<3.3 %)	typ. 3.5 % (<3.9 %)	typ. 3.5 % (<3.9 %)
Energy range	keV	30...3000							
Total efficiency ¹	cpm / μSv/h	62500	112000	20400	61200	270000	62500	112000	20400
Photopeak efficiency ¹	cpm / μSv/h	11300	29200	3200	9900	70600	11300	29200	3200
Intrinsic background	nSv/h	<5	<5	<5	<5	<5	100	130	100
MCA									
Number of channels		8192 (2048 used)							
ADC	Bit	14							
Clock speed	MSPS	40							
Peaking time	μs	0.1							
Filtering		Digital							
Option additional integrated Geiger Mueller tube (GM) model SARA-500-T									
Detector		GM detector ZP1314							
Range	mSv/h	0.04...1000							
Accuracy	%	+/-15							
Sensitivity	cpm / μSv/h	7.5							
Intrinsic background	nSv/h	<270							
Energy range	keV	50..1250							
Option additional integrated high dose rate spectrometer model SARA-500-H (patent pending)									
Detector		CeBr ₃							
Range	mSv/h	0.05... 100							
Accuracy	%	+/-15%							
Energy resolution ¹	FWHM	Typ. 7%							
Energy range	keV	30 keV...3.0 MeV							
Total efficiency ¹	cpm / μSv/h	1650							
Photopeak efficiency ¹	cpm / μSv/h	125							
Environmental specification									
Operation temperature	°C °F	-40...+60 -40...+140							
LTE transmission	°C °F	-30...+60 -22...+140							
Protection class		IP68							
Humidity	%	0...100							
Electrical specification									
Power	W	1.8 (average)							
Supply voltage	V	7...30							
EMC-proofed		EN55022:2006+A1:2007+A2:2010 Class B EN55024:1998+A1:2001+A2:2003							
Size and weight specification									
Diameter	mm (in)	94/134 (3.70/5.28)							
Height	mm (in)	502 (19.76)							
Weight	kg (lb)	2.80 (6.17)	3.2 (7.1)	2.70 (5.95)	2.65 (5.83)	4.4 (9.7)	2.80 (6.17)	3.2 (7.1)	2.70 (5.95)
Communication interfaces		Ethernet 100 Mbit/s WiFi (for wireless service) Optional: LTE (SARA-400-4)							