



Contamination Monitor LB 124 SCINT



RADIATION PROTECTION



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The LB 124 SCINT is a new contamination monitor based on innovative scintillation technology for the simultaneous measurement of alpha, beta and gamma contaminations on surfaces in radiation protection.

- High sensitivity
- Uniform response
- Lightweight, easy to handle
- Rugged instrument
- Wide temperature range



Applications

The Contamination Monitor LB 124 SCINT is a versatile and flexible instrument for practical radiation protection. It can be employed wherever contamination caused by radioactive substances is encountered and has to be monitored: in nuclear medicine, research, nuclear power plants, in decommissioning of nuclear facilities and disposal of nuclear waste and also in environmental monitoring.

The instrument is used to measure radioactive alpha, beta and gamma contaminations on surfaces such as floors, walls, desks, objects, clothing or skin.



Description

The contamination monitor LB 124 SCINT is a portable battery-powered instrument which includes a new type of compact and light scintillation detector with an active measurement area of 170 cm². Its sophisticated reflector geometry ensures that the response is extremely flat over the entire sensitive area.

It is comprised of a display unit with microprocessor electronics, a photomultiplier, a ZnS-scintillator and a signal processing electronics.



LB 124 SCINT in the radionuclide laboratory

Functions

The LB 124 SCINT has an attractive and ergonomic design and due to its low weight it is easy to handle. Even under adverse conditions, the measured results can be read easily on a large high-resolution display with background lighting.

A few directly accessible function keys suffice to operate the LB 124 SCINT. The instrument's surfaces can easily be decontaminated.

Different user profiles with different levels of complexity and access rights can be selected:

For experienced users the software offers numerous functions and utilities, measurement modes and access to all parameters. Less experienced users may use the instrument as a simple, clearly structured system. Profiles can be configured password-protected and are pre-defined as EASY, STANDARD and EXPERT. The instrument has a large data memory and supports bi-directional communication via RS232. Program download and data transfer to a PC or printer are possible.



Calibration factors according to ISO 7503-1



Activity measurement of samples

Technical Features

- Simultaneous alpha/beta measurement
- Calibration factors for more than 50 nuclides
- Calibration according to ISO 7503-1
- Protective grid with high transparency
- Adjustable alarm thresholds
- Acoustic alarm and optional vibration alarm
- RS232 interface

Technical Data LB 124 SCINT

Instrument

Display	Monochrome LCD 192 x 64 pixels Electro-luminescence illumination
Radiation detector	ZnS: Ag scintillator
Detection of light	PMT
Measurement modes	Alpha and beta measurement simultaneous and separate ratemeter, scaler-timer-mode
Detector dimensions	118 mm x 145 mm
Sensitive area	170 cm ²
Entrance window	Plastic metallized
Thickness of entrance window	6 µm (0.4 mg/cm ²)
Transmission	80 %
Protective grid	
Max. operating time (without illumination)	
3.5 Ah Ni-MH rechargeable batteries	> 25 h
7.8 Ah alkaline batteries	> 50 h
Dimensions	240 mm x 140 mm x 110 mm
Weight with batteries	1300 g
Data memory	1000 measured values
Serial interface	RS232

Ambient Conditions

Temperature range (Operation)	-20°C to +40°C
Temperature range (Storage)	-40°C to +60°C
Relative humidity	0 % to 80 % (no condensation)
External pressure (operation)	500 to 1300 hPa
External pressure (Storage/transport)	100 to 1300 hPa
Protection class	IP 53

Sensitivity

Efficiency (related to the activity of a source with an area of 100 cm ²)		
¹⁴ C	11 %	(Beta channel)
³⁶ Cl	43 %	(Beta channel)
⁶⁰ Co	29 %	(Beta channel)
¹³⁷ Cs	43 %	(Beta channel)
²³⁹ Pu	18 %	(Alpha channel)
²⁴¹ Am	20 %	(Alpha channel)
Background	approx. 0.1 cps	(Alpha channel)
Background	approx. 10 cps	(Beta channel)

Gamma sensitivity in external ¹³⁷ Cs field with 1 µSv/h	
Alpha channel	not detectable
Beta channel	< 100 cps
Spillover	< 20 % with ²¹⁰ Po
Alpha to beta channel	
Spillover	< 2 x 10 ⁻⁵ with ⁹⁰ Sr
Beta to alpha channel	
Measuring range	0 to 5000 cps (Alpha channel)
(Dead time <10 %)	0 to 50000 cps (Beta channel)
Surface response	max. ± 20 %
uniformity	(Alpha channel with ²⁴¹ Am and beta channel with ¹⁴ C point sources)

Accessories

Test source	²⁴¹ Am 800 Bq Ident. 46611
Power supply	Multi range, Ident. 41889
Wall bracket	Ident. 38789
Batteries	Ni/Mh rechargeable (3x), Ident. 40650
Protection grid	Ident. 38875
Sample drawer	for small sample activity measurement, Ident. 40927

Subject to changes without prior notice.

