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Radcount-3 Display Unit with SFP-100 Probe

PORTABLE SURFACE CONTAMINATION MONITOR



KEY FEATURES

- Simultaneous measurement of surface contamination by alpha/beta emitting radionuclides and ambient gamma dose equivalent rate
- Smart probe with gasless scintillation detector
- High detection efficiency and uniformity of response
- Measurement of contamination even on less accessible surfaces
- Search mode and contamination measurement mode
- Two pre-settable alarm levels
- Results available in various units
- Long operation due to new rechargeable battery
- User friendly, easy to use
- Easy decontamination

DESCRIPTIONS

The Radcount-3 with SFP-100 monitors are portable hand-held instruments primarily intended for the **measurement of surface contamination**.

The light, compact, and resistant SFP-100 probe is equipped with a scintillator, photomultiplier tube and associated two-channel processing electronics. The Radcount-3 display unit has a backlit graphic display, a membrane keyboard and a lithium-ion battery to power the meter. The display unit also includes an integrated GM tube for measuring the gamma dose equivalent rate.

Types SFP-100A, B, and C have **suppressed sensitivity to gamma radiation** and thus low response to gamma background. This allows setting of lower alarm levels comparing to the SFP-100D and E types.

- **A** measures only alpha contamination and is therefore designed especially for plants for the production and / or processing of nuclear fuel, uranium mining and / or processing.
- **B** measure alpha and beta contamination but cannot discriminate them. It has the highest sensitivity to beta contamination, especially low energies.

- **C** is a two-channel monitor, which can distinguish between alpha and beta contamination.

Types SFP-100B and SFP-100C are suitable for nuclear power plants, where the gamma background may be increased or variable.

Types SFP-4D and E have **increased sensitivity to gamma radiation** and thus higher response to gamma background. This prevents them from setting as low alarm levels as can be set for the SFP-100B and C types.

- **D** measures all types of radiation (alpha, beta, gamma) in one channel. It is suitable for nuclear medicine workplaces where Tc-99m radionuclide and possibly others pure gamma emitters are used.
- **E** measures all types of contamination and can discriminate alpha. It is suitable for training or experimental workplaces.

The meter allows the measurement of the surface contamination in two modes:

- **Ratemeter** - continuous measurement of the average pulse frequency to aid searching for a contaminated surface.
- **Contamat** - integration measurement for deciding on contamination or cleanliness of a specific area in comparison with the set threshold.

The measured values can be displayed as count rate, or for specific selected radionuclides in units of activity, surface activity, emission and surface emission. The display shows the selected quantity digitally and as a bar-graph.

For each channel the background radiation level can be measured manually and stored in memory. This background is then automatically deducted from the measurement results indicated on the display.

The measurement of the gamma dose equivalent rate is an additional measurement independent of the measurement of surface contamination. It can warn the operator about higher ambient radiation.

If detected contamination is higher than a pre-set threshold, a warning alarm will sound. One or two alarm levels can be set. Exceeding the first or second levels is indicated by different tones.

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The meter can also acoustically indicate pulses generated by the detector. Dual-channel monitors distinguish between pulse detection in the alpha channel and in the beta channel by a different sound.

The currently measured values in the "Ratemeter" mode and the results of the integration measurements in the "Contamat" mode can be stored in the measurement archive together with a time stamp. The archive can then be exported to a file. Service software is used to export the archive and set the essential parameters by means of a PC/notebook connected by a service port. The service cable is supplied as an optional accessory.

SPECIFICATIONS

Detector type SFP-100	plastic scintillator and/or ZnS(Ag)
Active area SFP-100	100 cm ²
Dimensions (W × H × D)	
Radcount-3	(96 × 171 × 42) mm
SFP-100	(105 × 288 × 80) mm
Weight	< 1,3 kg
Power supply	Li-Ion batteries mains adapter 5/12 VDC
Battery life	app. 200 hours (without back illumination)
Temperature range	from -10 to +45 °C
Units	cps, cps/cm ² , cpm, cpm/cm ² , dpm, Bq, Bq/cm ² , pps, pps/cm ²

MEASUREMENT OF THE DOSE EQUIVALENT RATE

Detector type	GM tube
Measurement range	100 nSv/h to 100 mSv/h
Energy range	60 keV to 3 MeV

TYPES OF PROBES

Name	1. channel	2. channel	3. channel
SFP-100A	alpha		gamma
SFP-100B	alpha + beta	-	gamma
SFP-100C	beta	alpha	gamma
SFP-100D	alpha + beta + gamma		gamma
SFP-100E	beta + gamma	alpha	gamma

RELATED PRODUCTS

PAM-100	Portable Activity Meter
PAM-170	Portable Activity Meter
PAM-525	Portable Activity Meter

SELECTED RADIOMETRIC PARAMETERS (approximate values)

Name	Channel	Radionuclide	Efficiency [%]	Decision threshold [Bq/cm ²]
SFP-100A	α	²⁴¹ Am	42	0,05
SFP-100B	α	²⁴¹ Am	44	0,13
	β	³⁶ Cl	51	0,08
SFP-100C	α	²⁴¹ Am	44	0,04
	β	⁹⁰ Sr+ ⁹⁰ Y	37	0,11
SFP-100D	α	²⁴¹ Am	40	0,28
	β	³⁶ Cl	50	0,16
	γ	¹³⁷ Cs	42	0,17
SFP-100E	α	²⁴¹ Am	43	0,05
	β	³⁶ Cl	43	0,20
	γ	¹³⁷ Cs	37	0,20

