

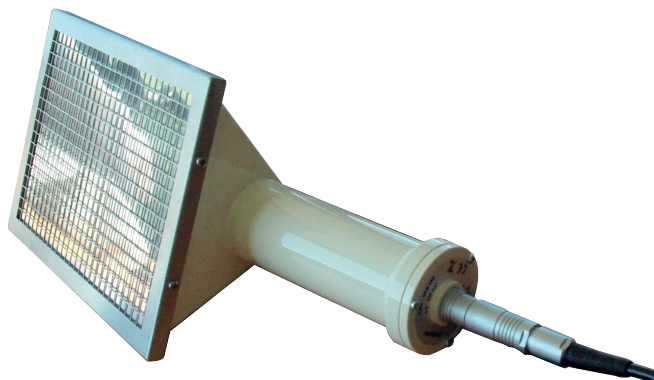
# SAB-250™

Alpha / Beta Probe

## FEATURES

- Alpha/Beta surface contamination measurement
- 250 cm<sup>2</sup> Phoswich scintillation detector
- Belongs to CSPTM family
- Calibration via PC
- Easy removable grid for decontamination
- Ergonomic counting mode selector on probe body

*SAB-250 probe is part of Canberra™ Smart Probe (CSP™) family, that drives numerous benefits, such as plug and play capabilities and exceptional readiness for field operations. Please refer to the “hand-held probes” brochure for further details.*



## DESCRIPTION

The SAB-250 probe for measurement of surface contamination is designed to be used with any CSP survey meter. Its phoswich detector with 250 cm<sup>2</sup> detection area makes it an ideal tool for direct measurement of Alpha and Beta emitters covering applications like hand monitoring fixed station, workers body/clothes frisking or large area check for dismantling operations.

The SAB-250 probe includes a presence sensor that helps, when docked on the wall mounting, to operate with an automatic background subtraction, either in fixed position for hand counting, or in frisking mode.

The small diameter of probe body is similar to many other CSP probes and supports an easy handling of the probe with less risk of drop.

The SAB-250 probe can use two different entrance windows:

- SAB-250: Mylar 6µm
- SAB-250/R: Mylar 6µm with additional very thin grid to add more protection for harsh environment.



## PHYSICAL CHARACTERISTICS

- **Display units:** c/s, Bq, Bq/cm<sup>2</sup>, cpm, dpm, dpm/100xcm<sup>2</sup> (depending on survey meter)
- **Emitters:** Alpha & Beta
- **Detector:** ZnS(Ag) adhered to 0.25 mm thick plastic scintillation material
- **Detection area:** 249 cm<sup>2</sup>. Removable aluminized Mylar® entrance window on metallic frame, thickness: 6 µm
- **Protection grid transparency:** 83 %
- **Measurement range:**
  - 0 to 7 000 c/s, 0 to 420 kcpm.
  - Activity equivalent range depends on calibration emitter
  - Conversion coefficients are factory set with Pu-239 for alpha channel and with Co-60 for beta channel
- **Dead time:** < 20 µs
- **Energy range:**
  - Alpha > 3 MeV
  - Beta > 150 KeV
- **Area response uniformity:**
  - > 80% Alpha
  - ≥ 60% Beta
- **Gamma sensitivity (Cs-137)**
  - Alpha : < 0.3 c/s per µGy/h
  - Beta : < 70 c/s per µGy/h
- **Background (ambient < 100 nGy/h (10 µR/h)):**
  - Alpha < 0.1 c/s (< 6.0 cpm),
  - Beta < 10 c/s (< 600 cpm)
- **Cross talk:**
  - Alpha to Beta (Pu-239) < 10%
  - Beta to Alpha (Co-60) < 0.1%



## ENVIRONMENTAL CHARACTERISTICS

- Temperature: -10 °c to +45 °C (+14 to +113 °F)
- Relative humidity: 40% to 85% at 35 °C
- Cleaning: housing easy to decontaminate
- Ingress protection: IP 20

## MECHANICAL CHARACTERISTICS

- Housing: stainless steel
- Protection grid: stainless steel
- Dimensions: length x width x height: 360 x 150 x 125 mm (14.2 x 5.9 x 4.9 in)
- Weight: < 1.2 kg (2,6 lb) without cable

## NORMS

- EMC: Conform
- CE: Conform
- IEC: Built to meet IEC 60325:2004
- ANSI: Built to meet ANSI N42.17A

The wall mounting of the SAB-250 probe can be used with an automatic background subtraction, either in fixed position for Hand Counting, or in Frisking mode. The operating mode is selected on the equipment menu.



## ORDERING REFERENCES

- SAB-250: EM104616
- SAB-250/R: EM106702
- CSP Cable (1.5 m length): EM77336
- CSP Cable (10 m length): EM99006
- CSP Cable (20 m length): EM98830
- CSP Coil Cable (0.7-1.5 m extensible length): EM77337
- RDS-31 Straight Cable (1.5 m length): 1233-319
- RDS-31 Coil Cable (0.7-1.6 m extensible length): 1233-320
- CSP-PC USB Cable: EM78466
- Calibration/Setup Software (CSPS): CSPS-F: EM78468, CSPS-R: EM80642, CSPS-R: EM80642, CSPS-EM80643

## ELECTRICAL CHARACTERISTICS

- Power: supplied by survey meter or PC (low voltage only): +5 V
- Consumption: < 30 mA

### Detection efficiencies and MDAs with 100 cm<sup>2</sup> ISO 8769 sources in contact with probe

	Nuclide	Emitter	Typical efficiency over 2π (%)	Guaranteed efficiency over 2π (%)	Response to activity (c/s)/Bq	MDA (Bq)
SAB-250	Am-241	Alpha	44	33	0,21	3,8
	Pu-239	Alpha	40	30	0,18	4,3
	Co-60	Beta	16	12	0,08	28
	Cl-36	Beta	32	25	0,2	10
	Sr-90 + Y-90	Beta	40	31	0,19	10

MDA: Background = 0.02 c/s (alpha) and 7 c/s (beta), measured during 100 s in a 0.1 µGy/h ambience.

Measuring time on source = 10 s.

Statistic: false alarm = 5% and non-detection = 5%.

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