



SA-100™

Alpha Probe

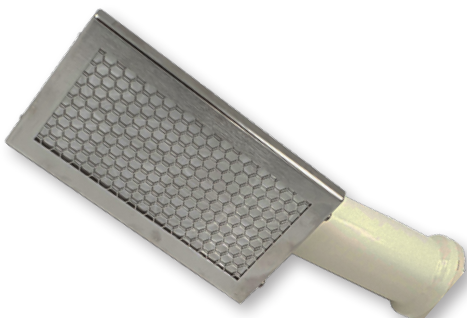
The SA-100 probe for measurement of surface contamination is designed to be used with any compatible CSP survey meter. Its ZnS(Ag) detector with 100 cm² detection area makes it an ideal tool for direct measurement of alpha emitter, covering applications like working station contamination check, workers body/clothes frisking or large area check for free release approval. The probe body diameter has been reduced to facilitate general handling and reduce the risk of drops.



FEATURES

- Alpha surface contamination measurement
- 100 cm² ZnS(Ag) scintillation detector
- Belongs to CSP™ family
- Calibration via PC
- Easy removable grid for decontamination

SA-100 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

Calibration and QA measurements can be performed directly with the probe, without using an instrument, by connecting the probe to a computer with CANBERRA Smart Probe Software (CSPS™), allowing your instruments to remain deployed in the field. It can also be connected via CSP-COM modules to integrate third party system and behave as a contamination sensor sub-assembly.

Once calibrated, SA-100 is ready to be used as a plug and play probe to start a QA measurement in CPM, DPM, DPM/100 cm² with US units survey meters; or c/s, Bq, Bq/cm² with SI units survey meters.

A SA-100 includes a protection grid that is very easy to remove for decontamination purpose. Even with the grid detached, the probe remains operational and the whole assembly stays light tight. The entrance window is attached on a removable metallic frame that is fixed on the probe body with flat screws and is quickly changed, reducing the service time.

The SA-100 probe can be upgraded (probe's firmware) via CSPS, a USB cable and a PC.



SPECIFICATIONS

NUCLEAR

- **Unit to display:** Depending on survey meter (c/s, Bq, Bq/cm² with SI units survey meters and CPM, DPM, DPM/100 cm² with US units survey meters).
- **Emitters:** Alpha
- **Detector:** ZnS(Ag) adhered to 0.25 mm thick neutral plastic material
 - **Detection area:** 102 cm² (68 x 150 mm)
 - Removable aluminized Mylar[®] entrance window on metallic frame, thickness - 6 µm
 - Protection grid transparency - 83 %
- **Measurement range:** 0 to 10000 c/s, 0 to 600 kcpm. Activity equivalent range depends on calibration emitter. Conversion coefficient is factory set with ²³⁹Pu
- **Dead time:** 2 µs
- **Energy range:** Alpha > 3 MeV
- **Background:** Ambient ≤100 nSv/h (10 µR/h); <0.01 c/s (<0.6 cpm)
- **Sunlight effect:** No effect up to 80 000 lux.
- **Crosstalk** - Beta to Alpha (⁹⁰Sr-⁹⁰Y) < 0.01%.

ERGONOMIC

- **Display:** provided by survey meter
- **Alarm Setpoints:** 10 values for each unit to display. Saved in probe memory. They can be edited with CSPS and PC.
- **Default alarm threshold** is chosen in a list by use of survey meter's keypad.

ELECTRICAL

- **Power:** supplied by survey meter or PC (low voltage only): +5 V.
- **Consumption:** 15 mA maximum.

MECHANICAL

- **Housing:** Painted Aluminum
- **Dimensions:** Length (with connector) x width (detector) x height (detector): 318.5 x 99 x 102 (12.5 x 3.9 x 4 in)
- **Weight:** 710 g (25 oz) without cable

ENVIRONMENT

- **Temperature:** -20 °C to +50 °C (-4 °F to 122 °F)
- **Relative humidity:** 10% to 93% at 35°C
- **Cleaning:** housing easy to decontaminate
- **IP20**

NORM

- **EMC:** conforms
- **CE:** meets CE requirements.
- **IEC60325:** meets standard requirements

ORDERING REFERENCES

- SA-100 - NOM006273 (EM75863)
- CSP Cable (1.5 m length) - NOM006282 (EM77336)
- CSP Cable (10 m length) - NOM006513 (EM99006)
- CSP Cable (20 m length) - NOM006512 (EM98830)
- CSP Coil Cable (0.7-1.5 m extensible length): NOM006283 (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 - NOM006288 (EM78466)
- Calibration/Setup Software (CSPS) - CSPS-F: NOM006289 (EM78468), CSPS-R: NOM006298 (EM80642), CSPS-E: NOM006299 (EM80643)

Detection efficiencies and MDAs with 100 cm² 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)
Am-241	Alpha	44	33	0.14	0.77
Pu-239	Alpha	44	33	0.16	0.70

MDA: Background = 0.01 c/s measured over 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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