



PORTABLE RADIATION MEASUREMENT

SA-20-2™

Alpha Probe

FEATURES

- Alpha surface contamination measurement
- 20 cm² detection area
- Belongs to CSP™ family
- Calibration via PC
- Easy removable grid for decontamination
- Compact probe and lightweight

DESCRIPTION

The SA-20-2 probe for measurement of contamination is designed to be used with any CSP host device. It can be a handheld CSP instrument, a single PC with dedicated software or a networkable system. The SA-20-2 probe connects to host device using either a specific cable or any of the CSP-COM modules to match the system configuration (wired or wireless). Its 20 cm² ZnS detection area makes it an ideal tool for counting alpha wipes, open wounds and filter papers.

The SA-20-2 probe is part of the Canberra™ SMART Probe (CSP) family. It includes all key components of hardware circuitry (high voltage power supply, amplifier, discriminator, etc.). Also, the intelligence associated with controlling those components is located in the probe – that is control and storage of key parameters, settings, calibrations, probe ID, alarm settings (10 values for each unit to display with default setting), etc. Thus the probe is a fully integrated subsystem taking and transmitting the measurement to the instrument, which is used for display.

With high voltage and digitization of the data occurring in the probe rather than the instrument, measurement quality is no longer dependent on external device quality (cable, host instrument). Moreover, a CSP probe is using a serial protocol to communicate with host, which can be an instrument or a PC.

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.

Once calibrated, the SA-20-2 unit is ready to be used as a plug and play probe to start a QA measurement in CPM, DPM, DPM/100 cm² or c/s, Bq, Bq/cm². The SA-20-2 probe connects to survey meter via a 1.5 meter or 20 meter CSP cable.

The SA-20-2 unit includes a hand screwed protective grid that is very easy to remove for decontamination.

The SA-20-2 probe is able to store up to 1000 data points from a data-logging procedure handled via the host instrument. These data are: Index, date/time, measurement value, selected unit and counting time.

The SA-20-2 probe can be upgraded (probe's firmware) via CSPS software, a USB cable and a PC.

SPECIFICATIONS

Nuclear

- Display Units: Depending on survey meter (c/s, Bq, Bq/cm² or CPM, DPM, DPM/100 cm²)
- Emitters: Alpha
- Detector: ZnS scintillation deposit on 3 mm thick neutral plastic material (PMMA)
 - Detection area: 19.62 cm² (50 mm diameter)
 - Surface uniformity response: better than 70%
 - Removable entrance window: aluminized Mylar window on metallic frame, thickness 6 μm
 - Protection grid transparency: 85%
- Measurement Range: 0 to 10 000 c/s, 0 to 600 kcpm. Activity equivalent range depends on calibration emitter. Conversion coefficient is factory set with ²³⁹Pu
- Dead Time: 50 μs
- Energy Range: Alpha >3 MeV
- Background:
 - Ambient ≤100 nSv/h (10 μR/h): <0.01 c/s (<0.06 cpm)
 - Beta influence (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 changed with CSPS platform and a PC. Default alarm threshold is chosen from a list by use of the survey meter's keypad

Electrical

- Power: Supplied by survey meter (low voltage only)
- Consumption: 15 mA maximum

Mechanical

- Housing: Painted aluminum
- Dimensions: Length (with connector) x diameter (detector) x diameter (body): 225 x 65 x 55 mm (8.8 x 2.6 x 2.2 in.)
- Weight: 567 g (20 oz) without cable

Environment

- Temperature: -10 °C to +45 °C (+14 to +113 °F)
- Relative humidity: 40% to 85% at 35 °C
- Cleaning: Housing easy to decontaminate

Norm

- CEM: Conforms
- CE: Meets CE requirements
- IEC: Designed to meet IEC60325:2004

ORDERING INFORMATION

- SA-20-2 Unit: EM90062.
- CSP Cable (1.5 m length): EM77336
- CSP Cable (10 m length): EM85920
- CSP Cable (20 m length): EM80653
- CSP-PC USB Cable: EM78466
- CSPS Calibration/Setup Software:
 - CSPS-F: EM78468
 - CSPS-R: EM80642
 - CSPS-E: 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)
SA-20-2	²³⁹ Pu	Alpha	52	45	0.25	0.44
	²⁴¹ Am	Alpha	44	39	0.21	0.52
	²³⁸ U	Alpha	40	36	0.37	0.29

*Above table data is preliminary and subject to change once more testing is completed.
 MDA: Background = 3 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%.
 MDA are calculated using the formula recommended by IEC 60325-2004.

