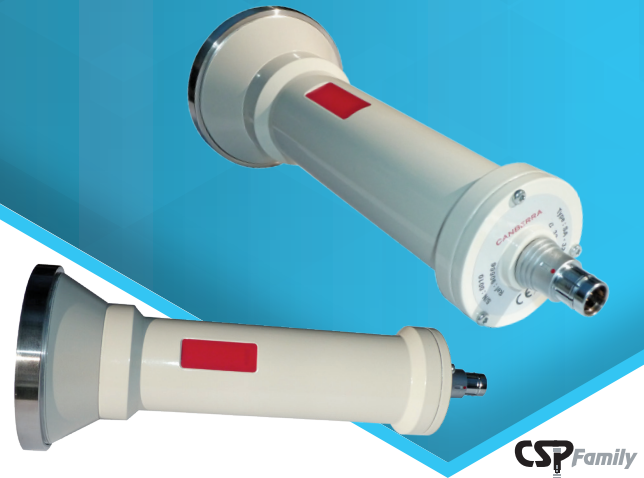




PORTABLE RADIATION MEASUREMENT

SA-32™

CSP Alpha Contamination Probe



CSP Family

FEATURES

- Alpha surface contamination measurement
- 32 cm² ZnS(Ag) scintillation detector
- Belongs to CSP™ family
- Calibration via PC software
- Robust screwed-on grid simple to decontaminate
- Easy to change scintillator
- Very low sensitivity to neutron and gamma field

DESCRIPTION

The SA-32 probe for measurement of surface contamination is designed to be used with CSP meter such as Radiagem™ meter, MIP-10 *Digital*™ meter, Avior® or Colibri® devices. Its ZnS(Ag) detector with 32 cm² detection area makes it an ideal tool for direct measurement of alpha emitters on glove boxes, small areas and for personal self control, allowing to check worker's arm in only one pass.

The sensitivity to gamma and/or neutron dose-rate has been reduced to minimize the risk of false positive alarm even in high dose rate environment.

The probe body diameter has been reduced to facilitate general handling and reduce the risk of drops.

The SA-32 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 any 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-32 probe is ready to be used as a plug and play probe to start a QA measurement in CPM, DPM, DMP/100 cm² with a Radiagem™ 4000 meter; or c/s, Bq, Bq/cm² with a Radiagem 2000 meter. The SA-32 probe connects to the CSP instrument connector via a CSP cable of various length or via CSP-COM™ communication module to either a Colibri device (Bluetooth® technology) or host system (Wi-Fi, RS-485, Ethernet; RF with specific RF receiver) and becomes a sub assembly of a larger system.

SA-32 | CSP ALPHA CONTAMINATION PROBE

The SA-32 probe includes a hand screwed protection grid that is very easy to remove for decontamination. When the grid is detached, the scintillator becomes available for replacement if necessary, reducing the time to service.

The SA-32 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-32 unit 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 with SI CSP instrument and CPM, DPM, DPM/100 cm² with American CSP instruments)
- Emitters: Alpha
- Detector: ZnS(Ag) coating on 3 mm thick neutral plastic material
 - Detection area: 32 cm² (total diameter = 70 mm, sensitive diameter = 64 mm)
 - Adhered aluminium/Mylar film on detector entrance surface, thickness: 1.8 µm
 - Protection grid transparency: 89%
- 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
- Surface Detection Uniformity: better than 50% of the highest efficiency point
- Gamma Sensitivity (¹³⁷Cs): <0.0001 c/s/µSv/h
- Neutron Sensitivity (²⁵²Cf): <0.002 c/s/µSv/h
- Background:
 - Ambient ≤100 nSv/h (10 µR/h) – <0.01 c/s (<0.6 cpm)
 - Beta influence (⁹⁰Sr-⁹⁰Y) – <0.01%

Ergonomic

- Display: Provided by survey meter or host system
- Alarm Setpoints: 10 values for each unit to display. Saved in probe memory. They can be changed with the CSPS platform and a PC. Default alarm threshold is chosen in a list by use of the survey meter's keypad

Electrical

- Power: +5 V supplied by host instrument (low voltage only)
- Consumption: 15 mA maximum

Mechanical

- Housing: Painted aluminum
- Protection Grid: Stainless steel
- Dimensions: Length (with connector) x diameter (detector) x diameter (body): 225 x 85 x 55 mm (8.8 x 3.3 x 2.2 in.)
- Weight: 678 g (24 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
- IP20

Norm

- CEM: Conforms
- CE: Meets CE requirements
- IEC: Designed to meet IEC 60325:2004
- ANSI: Designed to meet ANSI N42.17A

ORDERING INFORMATION

- SA-32 Unit: NOM006413 (EM90666)
- CSP Cable (1.5 m length): NOM006282 (EM77336)
- CSP Cable (10 m length): NOM006365 (EM85920)
- CSP Cable (20 m length): NOM006300 (EM80653)
- CSP-PC USB Cable: NOM006288 (EM78466)
- CSP Coil cable (0.7 to 1.5 meter extension): NOM006283 (EM77337)
- CSPS Calibration/Setup Software:
 - 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) |
|-------|-------------------|---------|--------------------------------|-----------------------------------|-------------------------------|----------|
| SA-32 | ²⁴¹ Am | Alpha | 37 | 35 | 0.17 | 0.62 |
| | ²³⁹ Pu | Alpha | 42 | 40 | 0.20 | 0.55 |

MDA: Background = 0.01 c/s 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%.
 MDA are calculated using the formula recommended by IEC 60325-2004.

