



SABP-464

Foot Alpha/Beta Probe



Nuclear



Healthcare



Homeland
Security
& Defense



Labs &
Education



Industrial and
Manufacturing

OVERVIEW

The SABP-464 probe for measurement of surface contamination is designed to be used with any CSP™ survey meter. Its phoswich detector with 464 cm² detection area makes it an ideal tool for direct measurement of Alpha and Beta emitters for workers foot check.

The SABP-464 includes a presence sensor. When it is connected to the AVIOR®-2, and the worker's foot is correctly positioned on the probe, the net measurement starts.

An adequate probe angle is driven by a removable support to ensure comfortable control when probe is independently positioned on the floor.

KEY FEATURES

- Alpha/Beta surface contamination measurement
- ZnS(Ag) 464 cm² Phoswich plastic scintillation detector
- Belongs to CSP family
- Calibration via PC
- Easy removable grid for decontamination
- Ergonomic counting mode selector on probe body

RELATED PRODUCTS

- MIP-10 Digital,
- MIP-2,
- AVIOR 2000,
- AVIOR-2,
- Radiagem™ 2000,
- Colibri®
- Or any computer based system developed with CSP-PL programming library

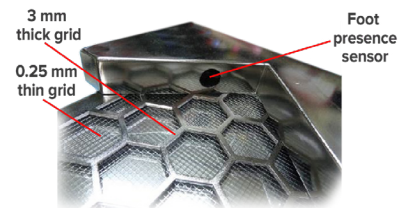
PHYSICAL CHARACTERISTICS

- **Display units:** c/s, Bq, Bq/cm² (depending on survey meter)
- **Emitters:** Alpha & Beta
- **Detector:** Plastic scintillator 0.25 mm thick, covered by ZnS(Ag) for Alpha detection, mounted on a PMMA support 35 mm thick
- **Detection area:** 464 cm²
3 layers of aluminized Mylar® 0.4-0.45 mg/cm²
- **Grid transparency:**
 - Internal protective thin grid 0.25 mm thick: 80%
 - External protective grid 3 mm thick: 91%
- **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:**
 - > 60% Alpha, ≥ 50% Beta
- **Gamma sensitivity (Cs-137)**
 - Alpha : < 0.3 c/s per µGy/h, Beta : < 150 c/s per µGy/h
- **Background (ambient < 100 nGy/h (10 µR/h)):**
 - Alpha < 0.1 c/s (< 6.0 cpm),
 - Beta < 20 c/s (< 1200 cpm)
- **Cross talk:**
 - Alpha to Beta (Pu-239) < 30%
 - Beta to Alpha (Co-60) < 0.1%

- Temperature: -10 °C to +45 °C (+14 to +113 °F)
- Relative humidity: 40% to 85% at 35 °C (+95 °F)
- Cleaning: housing easy to decontaminate
- Ingress protection: IP30

MECHANICAL CHARACTERISTICS

- Housing: painted aluminum
- Protection grid: stainless steel
- Dimensions: length x width x height: 485 x 220 x 215 mm (19 x 8.6 x 8.5 in.)
- Weight: < 10 kg (22 lb) without cable



ERGONOMY

- Display: provided by survey meter.
- Alarm setpoints: 10 values for each unit to display. Saved in probe memory. They can be edited with CSPS™ software on PC or with AVIOR-2 or Colibri.
- Default alarm threshold is chosen in the list by use of survey meter keypad.

ELECTRICAL CHARACTERISTICS

- Power: Supplied by survey meter or PC (low voltage only): +5 V
- Consumption: < 100 mA

ENVIRONMENTAL CHARACTERISTICS

NORMS

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



Autonomous probe with removable support

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)
SAB-464	Am-241	Alpha	19	15	0.1	5.7
	Pu-239	Alpha	18	14	0.09	6.4
	Co-60	Beta	17	14	0.09	70
	Cl-36	Beta	28	24	0.18	37
	Sr-90 + Y-90	Beta	32	27	0.2	32

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%.

