

ULTRA



SmartCAM

Alpha Beta in Air Monitor



The Ultra Energy SmartCAM is a next generation Continuous Air Monitor (CAM) that gives the user unparalleled performance in terms of detectable limit, sensitivity and speed to alarm.

Moving filter or static filter (either card mount or loose)

Separate head assembly for flexible installation

Alpha spectral analysis with unique Radon peak fitting algorithm provides greater sensitivity

Air density spectrum correction improves Radon rejection and result accuracy

CE/NRTL marked

MTBF>30,000 h



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SmartCAM: Alpha Beta in Air Monitor

The SmartCAM is the most technically advanced Alpha/Beta particulate in Air Monitor that can be provided under an NQA1 quality management.

The SmartCAM uses state of the art Spectral Measurement Analysis in Real Time (SMART) Technology that provides real advances in Alpha measurement techniques. Using an isotope peak fitting algorithm rather than regions of interest or tail-fitting methods, results are faster, more accurate and more reliable than ever.

In operation, the SmartCAM continuously monitors Alpha and Beta particulates deposited on a filter with a high efficiency detector. Air is drawn through the filter by an external vacuum pump or distributed vacuum main.

Housed in a robust stainless steel enclosure, the SmartCAM uses a Windows CE operating system and a color touchscreen LCD to enable the user to navigate around the system with ease.

A mass flow meter measures the air sampling rate and carefully designed flow routing ensures an optimised collection efficiency and uniformity of particulate deposition on the filter. Statistical fluctuations in activity are reduced by an advanced algorithm that allows alarm thresholds to be set throughout the range of detection without fear of false alarm events.

The measured energy of Alpha emitters is significantly affected by changes in air density. To eliminate this variable from the measurement process the SmartCAM continuously measures and corrects for changes in both air temperature and absolute pressure. Eliminating this variation produces a highly stable measurement for Radon compensation providing a more accurate measurement of the isotopes of interest. This also allows the SmartCAM to be calibrated at one atmospheric pressure (or elevation) and used at another without requiring recalibration.

Key Features:

Windows CE and colour touchscreen LCD

1024 channel analogue to digital converter (ADC)

Advanced 'Peak Fit' algorithm for Radon/Thoron compensation

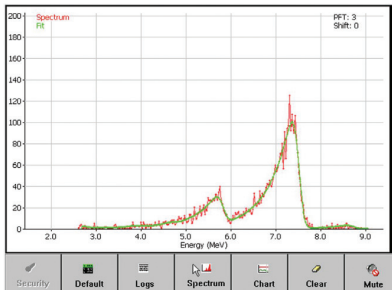
View Radon/Thoron spectrum at any time

Completely standalone (no configuration software required)

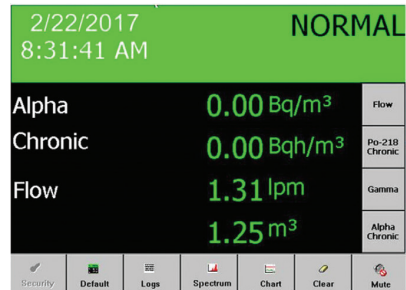
Measurement of pressure and temperature to compensate for spectrum drift

Detector head optimised for minimum detector filter air gap for higher detection efficiencies

Use of a differential spectrum provides faster responses to spectrum changes



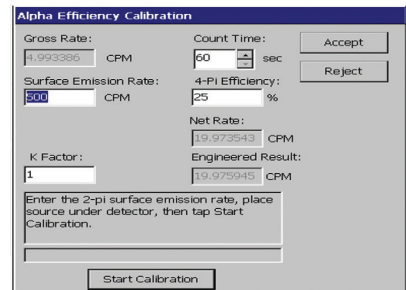
- The SmartCAM gives a real time spectral display.



- Simple to navigate, touch-screen display



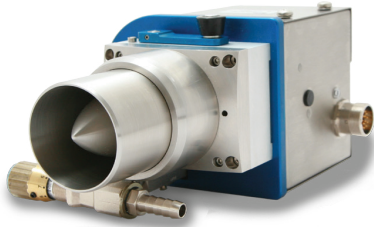
- Passcode protected interface



- Automated calibration routines

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SmartCAM: Alpha Beta in Air Monitor



• SmartCAM Fixed Filter Detector Head

SmartCAM Flexibility: Remote Monitoring

The SmartCAM Detection Head can be fixed to the side of the main enclosure, or positioned remotely, up to 10 meters away. This provides real flexibility for those clients who may wish to perform 'through-wall' or cell monitoring

The SmartCAM supports an external Gamma dose-rate probe, and offers measurement and alarms on Alpha, Beta and Gamma dose-rate



• SmartCAM Moving Filter Detector Head

SmartCAM Flexibility: Filter Options

Two fixed filter options are available giving the choice of using a card mounted filter or a 47 mm diameter loose filter in a carrier tray

The fixed filters used with the SmartCAM are the industry standard GF/A

Other filter options are available on request

Alternatively, the SmartCAM moving filter monitor (MFM) (pictured left) allows continuous use without the need for frequent filter replacement. The MFM uses a Specdon™ filter type, which is proven to give the best spectral resolution properties. The MFM uses an intermittent stepper mechanism to automatically advance the roll and after a user programmable time period or on various alarm or status conditions. Typically the MFM will support over 12 months of autonomous operation



• SmartCAM may be mounted in a trolley/cart

SmartCAM: Technically Advanced

The SmartCAM is recognised as the most technically advanced Alpha/Beta in Air Monitor commercially available.

This is due to:

Unrivalled Radon/Thoron rejection techniques

Highest detector efficiency

Highest particulate collection efficiency

All of which contribute to the achievement of:

The lowest possible detectable limits

The lowest possible false alarm rate

If required, the SmartCAM and pump may be mounted on a trolley/cart assembly for transportable use (pictured left)

Seismic Qualification

The SmartCAM has been seismically qualified. Please contact us to discuss further testing for specific site requirements.

SmartCAM: Alpha Beta in Air Monitor
Performance Specification

Detectors	2 x High resolutions solid state detectors with 450 mm ² active area.	Power	AC single phase 85/265 VAC, 50/60 Hz 50 VA (without pump), also equipped with 30 minute back-up battery.
Outputs (Optional)	RS485/RS232. TCP/IP. Analogue (4-20 mA). Four volt free relay contacts rated at 3 A/250 Vac.	Physical (Static Filter Head)	Width: 120 mm (4.75"). Depth: 127 mm (5"). Height: 272 mm (10.75"). Weight: 3.5 kg (7.7 lb).
Filter	47 mm loose filter, card mounted GF/A or Speclon™ moving filter.	Physical (Base Unit)	Width: 256 mm (10"). Depth: 192 mm (7.5"). Height: 432 mm (17"). Weight: 6.5 kg (19 lb).
Flow	Range: 20 - 50 lpm, typically 37 lpm (1.3 cfm).	Physical (Moving Filter Head)	Width: 256 mm (10"). Depth: 182 mm (7.2"). Height: 260 mm (10.2"). Weight: 4.5 kg (9.9 lb).
Display	Touchscreen LCD, back-lit with 132 mm x 100 mm (5.25" x 4") viewing area.	Pump	Carbon vane – 2 cfm (57 lpm).
Background Compensation	Dynamic Radon compensation using peak fitting of Alpha spectrum. Gamma background compensation.	MCA	1024-channel ADC.
Visible Alarm Output	LED Beacon stack.	Processor	Windows CE based processor.
Audible Alarm Output	1800 Hz, 80 dB alarm sounder (optional audible units are available).	Algorithms	Peak-fitting algorithm for ²¹⁴ Po, ²¹⁸ Po, ²¹² Po plus two additional isotopes or 'Total Alpha' ROI.
Measurement Range	Alpha: 1E-2 to 1E5 Bq/m ³ (2.7E-13 to 2.7E-6 μCi/mL) Beta: 1 to 1E7 Bq/m ³ (2.7 E-11 to 2.7 E-4 μCi/mL).	Applicable Standards	IEC 61172. IEC 60761. ANSI N42. 17B. An important part of ANSI N13.1/ISO2889 compliant systems.
Environmental	0 °C to 50 °C (32 °F to 122 °F).		


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