

SmartCAM

Alpha Beta in Air Monitor



The Lab Impex Systems 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.

Highlights

- Moving filter or static filter (either card mount or loose)
- Detachable head assembly for remote monitoring
- Alpha spectral analysis with unique radon peak fitting algorithm provides very low MDL's
- Compensation for air density variation improves radon rejection and result quality
- CE and NRTL marked

The SmartCAM utilises 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 proven to be more accurate than regions of interest or tail-fitting methods, results are faster, more accurate and more reliable than ever.

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

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.

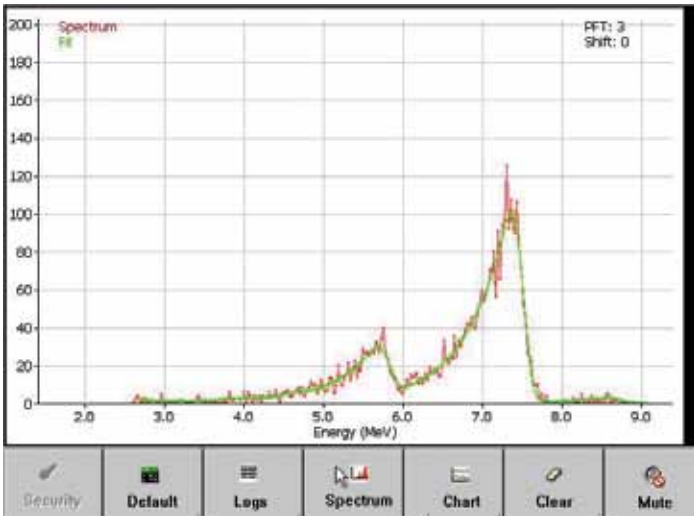
Housed in a robust stainless steel enclosure, the SmartCAM uses a Windows CE operating system and a touch screen LCD to enable the user to navigate around the system with ease.

The continuous measurement 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. Eradicating this variation in spectral process produces a highly stable measurement environment for optimum radon compensation.

Key Features:

- Windows CE and touchscreen LCD
- 1024 channel analogue to digital converter (ADC)
- '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



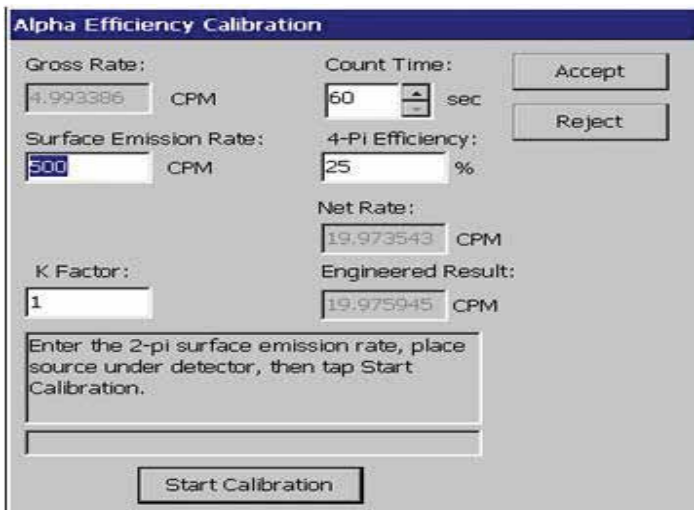
The SmartCAM gives a real time spectral display.

SmartCAM Flexibility: Remote Monitoring

- The SmartCAM Detection Head can be fixed to the side of the main enclosure, or positioned remotely, up to 66 cm away. This provides real flexibility for those clients who may wish to perform 'through-wall' or cell monitoring.
- The SmartCAM can interface to an external Gamma dose-rate probe, and offer measurement and alarm on Alpha, Beta and Gamma dose-rate.



Simple to navigate, touch-screen display



Automated calibration routines



Passcode protected interface

SmartCAM Flexibility: Filter Options



SmartCAM Fixed Filter Detection Head



SmartCAM Moving Filter Detection Head

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

The static card mount filter requires an operator replacement at frequent intervals. Using filter type GF/A, this filter gives stable spectral resolution over the duration of its use, and is the ideal choice when the sample is required to be laboratory analysed after use.

Alternatively, the SmartCAM moving filter monitor (MFM) allows continuous use without the need for filter replacement at regular intervals. The MFM uses a Speclon 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 introduce clean filter to the detector window after a user programmable time period or on various alarm or status conditions. Typically the MFM will support over 12 months of autonomous operation.

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

SmartCAM Flexibility: Physical Arrangement

The SmartCAM may be bench top or wall mounted to suit the requirements of each installation. The associated vacuum pump for the system, comes complete with a mounting bracket to allow bench top/wall mounting.

If required, the SmartCAM and pump may be mounted on a trolley/cart assembly for transportable use.



SmartCAM: Alpha Beta in Air Monitor

Detectors	<ul style="list-style-type: none"> 2 x High resolution PIPS solid state detector with 450mm² active area 	Environmental	<ul style="list-style-type: none"> 0°C to 50°C (32°F – 122°F)
Outputs (Optional)	<ul style="list-style-type: none"> RS485/RS232 TCP/IP Analogue (4-20 mA) or digital output Four way volt free relay contacts 	Power	<ul style="list-style-type: none"> AC single phase (90 – 264V AC), also equipped with 30 minute back-up battery
Filter	<ul style="list-style-type: none"> 47 mm loose filter, card mounted GF/A or SpecIon moving filter 	Physical (Static Filter Head)	<ul style="list-style-type: none"> Width: 120 mm (4.75") Depth: 127 mm (5") Height: 272 mm (10.75") Weight: 3.5Kg (7.7lb)
Flow	<ul style="list-style-type: none"> Range: 20 - 50 lpm, typically 37 lpm (1.3 cfm) 	Physical (Base Unit)	<ul style="list-style-type: none"> Width: 256 mm (10") Depth: 192 mm (7.5") Height: 432 mm (17") Weight: 6.5Kg (19lb)
Display	<ul style="list-style-type: none"> Touchscreen LCD, back-lit with 132 mm x 100 mm (5.25" x 4") viewing area 	Physical (Moving Filter Head)	<ul style="list-style-type: none"> Width: 256 mm (10") Depth: 182 mm (7.2") Height: 260 mm (10.2") Weight: 4.5Kg (9.9lb)
Background Compensation	<ul style="list-style-type: none"> Dynamic Radon compensation using peak fitting of Alpha spectrum Gamma background compensation 	Pump	<ul style="list-style-type: none"> Carbon vane – 2 cfm (57 lpm)
Visible Alarm Output	<ul style="list-style-type: none"> Xenon strobe 	MCA	<ul style="list-style-type: none"> 1024-channel ADC binned to 256-channel spectrum
Audible Alarm Output	<ul style="list-style-type: none"> 1800Hz, 80dB alarm sounder (optional audible units are available) 	Processor	<ul style="list-style-type: none"> Windows CE based processor
Measurement Range	<ul style="list-style-type: none"> Alpha: 1E⁻² to 1E⁶ Bq/m³ (2.7E⁻¹³ to 2.7E⁻⁶ uCi/ml) Beta: 1 to 1E⁷ Bq/m³ (2.7 E⁻¹¹ to 2.7 E⁻⁴ uCi/ml) 	Others	<ul style="list-style-type: none"> Peak-fitting algorithm for ²¹⁴Po, ²¹⁸Po ²¹²Po plus two additional isotopes or 'Total Alpha'

Lab Impex Systems Ltd

Impex House, 21 Harwell Road
Nuffield Industrial Estate, Poole
Dorset, BH17 0GE, UK

T +44 (0) 1202 68 48 48
F +44 (0) 1202 68 35 71
E info@labimpex.com

Lab Impex Systems Inc

Suite 100, 106 Union Valley Road
Oakridge, TN 37830
USA

T +1 865 483 2600
F +1 865 381 1654

