

Radioactive Particles Air Monitor

A portable and easy to setup real-time air monitoring system for the detection of airborne radioactive particles.



An improved Continuous Air Monitor (CAM) design has been developed by engineers at the Atomic Weapons Establishment (AWE) designed to work in a wide variety of settings without requiring specific configuration.

In environments where nuclear materials are directly handled or machined, the air needs to be monitored to check there are no man-made radioactive airborne particles that could be breathed in operators working in the room.

Establishments such as nuclear power stations and other facilities with the potential for contamination to become airborne may need such real-time monitoring.

Continuous Air Monitors

CAM systems that continually monitor the air and raise an alarm when they detect a small amount of additional radioactive particles in the air are now best practice.

However, background subtraction is a significant challenge in CAM systems and various methods have been employed to solve the problem. In many cases parameters are configured by end users to attempt to match the local radon environment. Incorrect choice of parameters can result in higher than desirable alarm thresholds or false alarm rates, either increasing worker dose or eroding system confidence.

AWE-CAMS

An improved design of CAMS has been developed by engineers at the Atomic Weapons Establishment (AWE) to address current setup challenges and to achieve the best reduction in false alarm rates.

Benefits

- » **Quick and easy installation** - the AWE-CAM system has only a small number of user defined settings.
- » **Automatic calibration** - a patented method quickly and easily performs energy calibration and avoids the need for iterative adjustment.
- » **Flexible installation** - the compact detector head can be positioned in close proximity to the operator.

Description

The AWE-CAM system has been designed to operate in a wide range of background environments without the need for special configuration. It comprises of five modules:

- » Sampling head
- » Controller
- » Display unit
- » Alarm unit
- » Vacuum supply

In a portable configuration, as shown, these elements are mounted on a trolley with a telescopic sampling head mount. This is designed for both ease of use and transit between locations.

The vacuum pump draws air towards a glass fibre filter that collects dust particles. Alpha and Beta emissions are then analysed in the head to determine if an alarm needs to be raised.

AWE-CAM also features a display unit for displaying system operational data and historic information. A local alarm unit produces a visual, auditory and electronic alarm signal when activity in the air above background levels has been detected.

The system can provide status information to a building's SCADA to provide real-time information and aid situational awareness.

Intellectual property

GB and international patents filed (GB2570375, GB2482047B).

More information

For more information about licensing this technology, or to speak to us about our other sensors-related IP, please contact us.



AWE-CAM system

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