CAMSYS™

iCAM™

Mobile Alpha Beta Particulate Monitor

Measuring of airborne alpha and beta particulate activity with dynamic radon/thoron alpha and beta background compensation.

DESCRIPTION

The iCAM intelligent alpha beta continuous air monitor forms part of the CAMSYS product line. It provides robust and reliable monitoring of airborne alpha and beta particulate activity in the workplace. It acts as a simple alarming monitor for operators, while measuring airborne activities in real time with the sophistication required to provide low false alarm rates and high protection levels. At the same time it provides automated facilities which assist supervisors to conduct detailed setup and operational overview.

The iCAM measures airborne alpha and beta particulate activity with dynamic radon/thoron alpha and beta background compensation. It also provides static or dynamic compensation of beta measurements for gamma background depending on the choice of detector type.

The iCAM has high detection efficiency for both alpha and beta particles and provides good sensitivity for low energy beta detection down to 50 keV.

FEATURES

- ✔ Continuous monitoring of both alpha and beta activity in air
- ✔ Alpha MCA spectroscopy and separate beta discrimination
- ✔ Excellent low energy beta performance
- ✔ Auto-adaptive spectrometric compensation for radon/thoron
- ✔ Simple and automated checks for calibration, gain and efficiency
- ✔ RS485, RS232 and Ethernet communication interfaces
- ✔ 3 - 6 months data archive with detailed event log

iCAM™ MOBILE ALPHA BETA PARTICULATE MONITOR

PHYSICAL CHARACTERISTICS

- Radiation detected: alpha, beta and gamma
- Detector: dual PIPS® large area silicon
- Filter type: fixed or moving; FSLW, GFA or FMLB
- Measurement range: in excess of 500 kBq (13.5 µCi) of combined alpha and beta activity deposited on the filter
- Typical measurement ranges:
  - Alpha: 1E-3 to 9E3 Bq/m³ (1 hour averaging)
  - Beta: 1 to 3.6E5 Bq/m³ (1 hour averaging)
- Detection efficiencies:
  - Alpha: 24% for all alpha up to 5.7 MeV
  - Beta: 24% for ^{36}Cl or ^{90}Sr, 15% for ^{60}Co
- Typical energy windows:
  - Alpha: 3 MeV to 10 MeV
  - Beta: 50 keV to 2.5 MeV

ENVIRONMENTAL CHARACTERISTICS

- Temperature range: +5 °C to +50 °C (+41 °F to +122 °F)
- Humidity range: up to 95%, non-condensing
- Protection index: IP54

PNEUMATIC CHARACTERISTICS

- Airflow measurement: electronic mass flowmeter, of range 15 to 60 l/min (0.5 to 2.1 ft³/min)
- Typical indicated flow rate: 37 l/min (1.3 ft³/min), controlled by the optional manual flow control valve
- Low and high flow rate limits adjusted by user
- Low differential filter pressure alarm 50 mm Hg (25 in WG)

MECHANICAL CHARACTERISTICS

- Dimensions: 245 mm x 535 mm x 170 mm (9.6 in x 21 in x 6.7 in)
- Weight: 12 kg (26 lb) without vacuum pump

ELECTRICAL CHARACTERISTICS

- AC mains frequency: 47-63 Hz
- Voltage: 100-240 V (± 10%)
- Power consumption: 46 VA

- Fuses (internal):
  - Mains protection: rating: 1.6 A, time lag HRC 250 V rating
  - Battery protection: rating 2.5 A, time lag LBC
- Battery back-up (for full instrument functionality, excluding external pump): sealed lead acid battery 12 V, 1.2 Ah; typical endurance: 30 min

SIGNALING

- Red beacon: LED, flashing at 1 Hz for activity alarm
- Green beacon: LED, continuous illumination for normal operation; flashing at 1 Hz for system fault
- Sounder: separate tones for activity and fault alarms; various tones selected by the user

REFERENCE STANDARDS

- Radiological: IEC61172, IEC60761 parts 1 & 2, IEC61578 and IEC61508 (SIL1); ANSI 42.17B
- EMC: EN61326-1 (2013), EN61326-2-1 (2013), IEC61010-1 (3rd edition), UL61010-1 (2012) and CAN/CSA C22.2 No. 61010-1 (2012)

OPTIONS

- Moving filter version
- Full-function area gamma alarm monitor capability using the optional G64™ detector
- TCAM PIPS acid resistant detector and flowmeter
- Optional Input/Output expansion
- Optional amber beacon for level 1 alarms (flashing at 1 Hz)

ACCESSORIES

- Bench stand or trolley/cart mountings
- Wall mounting plate
- Air inlet to pipe adaptor
- Flow regulator valve
- Nitto piston air pumps (low noise)
- Rietschle rotary vane air pumps (high capacity, for high dust loading environments)
- iConfig configuration software
- Tablet configuration unit
- RS232 connection cable

MIRION TECHNOLOGIES