CAMSYS

iCAM-HD™

High Flow Rate Alpha Beta Air Monitor

Monitoring of airborne alpha and beta particulate activity in applications where higher sample flow rate is required.

FEATURES

- Continuous monitoring of both alpha and beta activity in air
- Ambient gamma monitoring using G64™ silicon detector
- Alpha MCA spectroscopy and separate beta discrimination
- Good low energy beta detection
- Compensation algorithms allow alpha and beta measurements to be made in the presence of natural alpha, beta and gamma background
- One analogue (4-20 mA) input that can be used for external stack airflow measurement
- Two Ethernet network ports equipped with CENA network firmware
- Internal electronic airflow rate measurement, with high/low flow alarms
- Wide range of airflow rates up to 120 liters/minute (7.2 m^3/h = 4.2 cfm)
- Archive data storage up to 75,000 entries
- RADACS or Horizon® surveillance system compatibility
- iCAM-HD configuration settings can be viewed and edited using the iConfig software, via an RS-232 connection, or via an Ethernet network connection

DESCRIPTION

The iCAM-HD alpha/beta Continuous Air Monitor provides robust and reliable monitoring of airborne alpha and beta particulate activity in the workplace. It's an easy-to-use alarming monitor measuring airborne activities in real time, while using sophisticated calculation methods to provide low false alarm rates.

The iCAM-HD unit also provides ambient gamma monitoring when the optional G64 silicon gamma detector is connected.

iCAM-HD monitors measure airborne alpha and beta particulate activity with radon/thoron alpha and beta background compensation and provides dynamic compensation of beta measurements for gamma background. The iCAM-HD monitor has a high detection efficiency for both alpha and beta particles and provides a good sensitivity for low energy beta detection. Two levels of alarm (setpoints) are defined for each of the alpha, beta and gamma measurement variables.

The alarms are fully compensated for the backgrounds from gamma radiations and radon/thoron daughter activities.

RADIATION MONITORING SYSTEMS DIVISION | PARTICULATE MONITORS

iCAM-HD | HIGH FLOW RATE ALPHA BETA AIR MONITOR

PHYSICAL CHARACTERISTICS

- Detector: 2 x CAM1700ASV PIPS® detectors
- Filter: FSLW membrane filter roll, fixed FSLW filter or card mounted filter
- Measurement range: in excess of 500 kBq (13.5 µCi) of combined alpha and beta activity deposited on the filter
- Efficiency:
  - Alpha: 21% for alpha up to 5.7 MeV
  - Beta: 22% for ^{36}Cl or ^{90}Sr
- Minimum detectable activity:
  - For ambient radon ^{222}Rn levels from 0 to 100 Bq/m^3

ENVIRONMENTAL CHARACTERISTICS

- Temperature range: 5 °C to +40 °C (41 °F to 104 °F)
- Humidity range: 30% to 90% RH, non-condensing
- IP rating: IP54 excluding the open air sampling intake

PNEUMATIC CHARACTERISTICS

- Measurement: electronic mass flow meter, of range: 20-120 l/min (0.7 - 4.2 ft^3/min)
- The airflow rate is measured directly on board
- Low and high flow rate limits adjusted by user
- Low differential filter pressure alarm 22.5 mm Hg (3 kPa)

MECHANICAL CHARACTERISTICS

- Size: 450 x 828 x 295 mm (17.7 x 32.6 x 11.6 in.) (W x H* x D) *including the light stack
- Weight: 30 kg (66 lb) without vacuum pump or wall mounting bracket
- Stainless steel wall mounting bracket: weight 4.8 kg (10.5 lb)

ELECTRICAL CHARACTERISTICS

- AC mains frequency: 50-60 Hz
- Voltage: 100-240 V (± 10%)
- Power consumption: 60 VA
- Mains fuses (internal) mains protection: rating: 2.0 A, time lag
- HRC 250 V rating
- Optional battery back-up (for full instrument functionality excluding pump): nickel-metal hydride battery 12 V, 7.4 Ah; typical endurance: 2 hours – fitted with associated battery management board
- Outputs and communications:
  - Serial interface: RS-485, RS-232 and two Ethernet ports
  - Three analog current loop signals (4-20 mA)
  - Nine relays used to indicate status and alarm conditions to external systems

SIGNALING

Color	Alarm Annunciators
Red Beacon	LED, 240 flashes per minute in the event of a Level 2 activity alarm
Amber Beacon	LED, flashes at 80 flashes per minute in the event of a Level 1 activity alarm. On for fault
White Beacon	LED, Continuous illumination to indicate a maintenance condition including test or initialization
Green Beacon	LED, Continuous illumination indicates system is fine and no alarms. 80 flashes per minute during initialization

- Sounder: separate tones for activity and fault alarms; various tones selected by the user
- The sounder will operate at full volume for three minutes after each new event

REFERENCE STANDARDS

- Radiological (temperature range limited from 0°C to +40°C): IEC 60761, parts 1 and 2, IEC 61578, ANSI 42.17B
- Mains power connections: IEC61010-1:2010
- EMC/electrical: EN 61326-1:2013, EN 61326-2-1:2013, IEC 61010-1 (3rd edition), UL 61010-1:2012, CAN/CSA C22.2 No. 61010-1:2012

OPTIONS

- Wall-mounting brackets
- Filter roll
- External G64 gamma detector and connecting cable
- Trolley and air pump (110 V or 230 V)
- External G64 gamma detector wall bracket and pin
- Air inlet pipe adapter

ACCESSORIES

- iConfig software for PC
- Door key
- Connection cable (iCAM monitor or PC)

Featuring:

CANBERRA

MIRION TECHNOLOGIES

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