

Continuous Air Monitor

for simultaneous alpha and beta measurements



The Mission Support MS-CAM Continuous Air Monitor is a professional instrument designed for accurate measurement of airborne alpha- and beta-particulate concentration and estimation of radon equilibrium equivalent concentration (EEC) in the air. The monitor allows setting up two thresholds for every measuring channel and alarms when thresholds are exceeded.

The monitor is designed for autonomous 24/7 operation and needs minimum service and maintenance. An industry standard Millipore® filter or Mission Support proprietary 35 mm x 12 m membrane filter rolls can be used. The measuring results are displayed on a high-contrast LCD located on the front panel and can be accessed remotely using industry standard RS-485 Modbus-RTU interface. This makes MS-CAM an ideal choice for unattended operations and system integration.



Due to the use of advanced proprietary algorithms, the MS-CAM accurately subtracts radon/thoron progeny background to achieve a very low false alarm rate. The gamma background can be subtracted by means of an optional dedicated detector. An advanced averaging algorithm and a set of two thresholds provide robust configuration options for the user to adjust the MS-CAM settings to various operating environments, from occupational workplace monitoring to use at nuclear power facilities. A mobile wheel-cart mounted version for easy transport, especially over stairs and obstacles, is also an option.

FUNCTIONAL HIGHLIGHTS

- Radon/thoron and gamma background compensation
- Built-in flow meter and proportional valve
- Compact and lightweight
- Advanced algorithm for accurate activity concentration measurement
- Proprietary low-cost filter media

COMMUNICATION INTERFACES

- 2 isolated RS-485 Modbus-RTU, RS-232
- 3 isolated analog outputs, 0/4..20 mA
- 4 user programmable SPDT relays
- Ethernet TCP/IP

TYPICAL APPLICATIONS

- Occupational safety and workplace monitoring
- Nuclear fuel cycle industry and Nuclear Power Plants
- Environmental monitoring
- Uranium mining and mineral processing



Specifications

Detection block — Radiological

Airborne activity concentration measurement range

alpha 1×10^{-2} to 5×10^6 Bq/m³

beta 5×10^{-2} to 1×10^7 Bq/m³

EEC of radon progeny 1×10^{-2} to 5×10^6 Bq/m³

Energy range — alpha from 3 to 9 MeV

Energy range — beta from 50 keV to 3 MeV

Relative error, alpha-active airborne particulates $1 \div 5 \times 10^6$ Bq/m³ less than $\pm 30\%$

Relative error, alpha-active airborne particulates $1 \div 5 \times 10^6$ Bq/m³ less than $\pm 15\%$

Relative error, beta-active airborne particulates $5 \times 10^{-2} \div 1 \times 10^{-1}$ Bq/m³ less than $\pm 50\%$

Relative error, beta-active airborne particulates $1 \times 10^{-1} \div 10$ Bq/m³ less than $\pm 30\%$

Relative error, beta-active airborne particulates $10 \div 1 \times 10^7$ Bq/m³ less than $\pm 15\%$

Pneumatic

Flow rate from 15 to 75 LPM

Measurement pressure, temperature, pressure drop according to filter dust loading

Electrical

Power supply AC 220/110V, DC 48V

Power consumption 40 VA

Data interfaces 2 isolated RS-485; 1 RS-232

Discrete outputs 4 user programmable SPDT relays

Analog outputs 3 isolated analog outputs, 0/4...20 mA

Environmental

Temperature range from -20 to +50 °C

Pressure from 84,0 to 106,7 kPa

Humidity up to 95% at +35 °C

Mechanical

Inlet/outlet connection G1/2"

Ingress protection IP65

Dimensions — detection block only, mm 383×251×300

Dimensions — wall rack with pump module, mm 461×275×917

Dimensions — mobile cart with pump module, mm 600×403×1100

Weight — detection block only, kg 14

Weight — wall rack with pump module, kg 15

Weight — mobile cart with pump module, kg 18

Pump module

Pump type oil-less rotary vane

Flow rate up to 75 LPM

Power supply 220V AC (110V optional)

Power consumption 250 VA

Inlet/outlet connection G1/2"

Dimensions, mm 400×210×210

Weight, kg 8,5

External alarm module

Model 24V LED tower light

Type 3 lights: red, yellow, green; buzzer: 120 dBA at 1 meter

Dimensions, mm 500×90×50

Membrane filter

Model Mission Support Alpha-Spectra-1™ or equivalent

Resistance to the air, at linear flow velocity 1 cm/s, not more 50 Pa

Collection efficiency at 1 cm/s air flow, 0,1 micron 99,0%

Collection efficiency at 1 cm/s air flow, 0,4 micron 99,9%

Roll size 35 mm × 12 m

Specifications are subject to change without notice.

Copyright © 2026 Mission Support. All rights reserved.

Mission Support · Alexanderveld 5, 2585 DB The Hague, Netherlands

E: info@cbrn-missionsupport.com · cbrn-missionsupport.com