



ABPM 204M

Mobile Alpha Beta Particulate Monitor



Nuclear
Power



Healthcare



Homeland
Security
& Defense



Labs and
Education



Industrial and
Manufacturing

OVERVIEW

The ABPM 204M forms part of the RAMSYS product line.

Its small and light weight extendable sensor allows this monitor to function locally next to the respiratory tract of workers. A dual silicon detector performs the gamma compensation. A processing algorithm provides a dynamic compensation of radon and thoron solid progenies.

Operating costs are minimised through unattended operation, by the use of a continuous filter and the on-line spectroscopy capability. All these features make the ABPM 204M an efficient diversified and cost effective tool.

KEY FEATURES

- Dynamic compensation of the radon and thoron solid progenies
- Optimized beta measurement for environments with low rate of radon
- On-line alpha spectrometry
- Up to 6 months filter cassette autonomy
- Optimized alpha measurement for low energies (U^{233} , U^{235} , U^{238})

RELATED MONITORS

- ABPM 203M: plutonium optimized version
- ABPM 203P: portable version

PHYSICAL CHARACTERISTICS

- Radiation detected: alpha, beta and gamma
- Detector: dual large area silicon
- Filter type: FSLW2 (MILLIPORE)
- Typical energy windows:
 - Alpha: 2 MeV to 10 MeV
 - Beta: 80 keV to 2.5 MeV
 - Gamma: 80 keV to 2.5 MeV
- Typical measurement range:
 - Alpha: 10^{-2} to $3.7 \cdot 10^{+6}$ Bq/m³ ($2.7 \cdot 10^{-13}$ to 10^{-4} μ Ci/cc)
 - Beta: 1 to $3.7 \cdot 10^{+6}$ Bq/m³ ($2.7 \cdot 10^{-11}$ to 10^{-4} μ Ci/cc)

ENVIRONMENTAL CHARACTERISTICS

- Long term temperature: +10°C to +40°C (+50°F to +104°F)
- Periodic temperature: -5°C to +55°C (+23°F to +131°F)
- MTBF: > 20 000 hours, with preventive maintenance of the pump
- TID: 100 Gy (10^{+4} rad)

PNEUMATIC CHARACTERISTICS

- Standard flow rate: 35 l/min (1.24 scfm)
- Pressure drop: 100 to 350 mbar (1.45 to 5.07 psi)

MECHANICAL CHARACTERISTICS

- Dimensions: 1270 mm x 360 mm x 303 mm (50 in x 14.2 in x 12 in)
- Weight: ~ 26 kg (~ 57 lb)
- Color: gray RAL 7030 (decontaminable paint)

ELECTRICAL CHARACTERISTICS

- Power supply: 230 Vac – 50 Hz or 120 Vac – 60 Hz
- Data link outputs: 1 RS232 and 2 isolated RS485
- Alarm relays: 3 SPDT relays
- I/O: 2 isolated analog outputs (0/4-20 mA)

SIGNALING

- Alphanumeric display: measurement, status...
- Sound alarm: buzzer 90 dBA at 1 meter
- Visual alarm: 2 lights (red, yellow)

REFERENCE STANDARDS

- Nuclear: IEC60761, IEC61172, IEC61578
- EMC: 2014/30/EU and 2014/35/EU, IEC61000-6-2 and IEC61000-6-4

VERSIONS

- 230 Vac or 120 Vac
- Hoses length: 1.5 m (5 ft), 3 m (10 ft), 10 m (33 ft) or 20 m (66 ft)

ACCESSORIES

- Calibration tools
- Software
- USB converters
- Radiomodem (either customer specified or WRM2)

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