ABPM 203M

Mobile Alpha Beta Particulate Monitor

The ABPM 203M 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 (pips) performs the gamma compensation and a radial fin grid limits the scattering of the alpha particles (static compensation) which facilitates the compensation of the radon and thoron solid progenies by the processing algorithms (dynamic compensation).

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 203M an efficient diversified and cost effective tool.

FEATURES

- Static and dynamic compensation of the radon and thoron solid progenies
- Perfectly adapted for alpha and beta measurement of particulates in environment with high rate of radon
- Optimized alpha measurement for high energies (PU^{238}, PU^{239})
- Real time alpha spectrometry
- Up to 6 months filter cassette autonomy

APPLICATIONS

- Radioprotection of workers
  - Containment atmosphere
  - Control room air, etc.

RELATED MONITORS

- ABPM 203P: portable version
- ABPM 204M: uranium optimized 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 10^{+6} Bq/m^3 ($2.7\ 10^{-13}$ to 10^{-4} µCi/cc)
  - Beta: 1 to 3.7 10^{+6} Bq/m3 ($2.7\ 10^{-11}$ to 10^{-4} µCi/cc)

ENVIRONMENTAL CHARACTERISTICS

- Long term temperature: +10°C to +40°C (+50°F to +104°F)
- Maximum periodic ambient temperature: +5°C to +45°C (+41°F to +113°F)
- MTBF: > 50 000 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: 2006/95/CE and 2004/108/CE, IEC61000-6-2 and IEC61000-6-4

VERSIONS

- 230 Vac or 120 Vac
- Hoses length: 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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