



PING 206S

Particulate Iodine and Noble Gas Monitor



Nuclear
Power



Healthcare



Homeland
Security
& Defense



Labs and
Education



Industrial and
Manufacturing

OVERVIEW

The PING 206S monitor forms part of the RAMSYS product line. It has been developed to continuously measure the particulate, iodine and noble gas volumetric activities in stacks, ventilation ducts or working areas. It integrates all the functions and performances of the ABPM 201, IM 201 and NGM 204 monitors into a single monitor.

RELATED MONITORS

- ABPM 201S: particulate monitoring only
- IM 201S: iodine monitoring only
- NGM 204S: noble gas monitoring only
- PIM 206S: version without noble gas
- PNG 206S: version without iodine
- PIS 203S: accident range particulate and iodine sampler
- NGM 203S: high range noble gas monitor

KEY FEATURES

- Particulate monitoring with static and dynamic compensation of the radon and thoron solid progenies
- Iodine monitoring for both molecular and organic forms
- Noble gas monitoring with dynamic gamma and pressure compensations
- Compact skid
- 1E qualification and embedded safety related software
- Available under 10 CFR 50 App.B, ASME NQA-1 and IEC 61226 programs for safety related applications

PHYSICAL CHARACTERISTICS

- **Particulate (ABPM 201):**
 - 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)
- **Iodine (IM 201):**
 - Radiation detected: gamma
 - Detector: 1¼"x1" NaI(Tl)
 - Iodine cartridge: 57.7 mm (2.27 in)
 - Energy range: 100 keV to 3 MeV
 - Typical energy window: 314 - 414 keV (¹³¹I, E_γ 364.5 keV)
 - 1024 channels spectrum
 - Typical measurement range: 3.7 to $3.7 \cdot 10^{+6}$ Bq/m³ (10^{-10} to 10^{-4} μ Ci/cc)
- **Noble gas (NGM 204):**
 - Radiation detected: beta and gamma
 - Detector: dual large area silicon
 - Sampling chamber: 300 ml (300 cc)
 - Typical energy windows:
 - Beta: 80 keV to 2.5 MeV
 - Gamma: 80 keV to 2.5 MeV
 - Typical measurement range:
 - ⁸⁵Kr: $3.7 \cdot 10^{+4}$ to $7.4 \cdot 10^{+13}$ Bq/m³ (10^{-6} to $2 \cdot 10^{+3}$ μ Ci/cc)
 - ¹³³Xe: $3.7 \cdot 10^{+4}$ to $3.7 \cdot 10^{+12}$ Bq/m³ (10^{-6} to 10^{+2} 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
- 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: 1614 mm x 1535 mm x 690 mm (63.5 in x 60.4 in x 27.1 in)
- Weight: between 670 kg (1477 lb) and 720 kg (1587 lb)
- Color: gray RAL 7030 (decontaminable paint)
- Inlet tube connection: Ø 25.4 mm OD (1 in)
- Outlet tube connection: Ø 12 mm OD (1/2 in)

ELECTRICAL CHARACTERISTICS

- Power supply: refer to possible versions
- Data link outputs: 1 RS232 and 5 isolated RS485
- Alarm relays: 9 SPDT relays and 5 DPDT relays
- I/O: 8 isolated analog outputs and 4 isolated analog inputs (0/4-20 mA)

SIGNALING

- Graphic display: measurement, historical trend, status...
- Sound alarm: buzzer 90 dBA at 1 meter
- Visual alarm: 3 lights (red, yellow, green)

REFERENCE STANDARDS

- Nuclear: IEC60761, IEC61171, IEC61172, IEC61578
- Environmental: IEC60780, IEEE323, RG 1.97
- Seismic: IEC60980, IEEE344
- EMC: 2006/95/CE and 2004/108/CE, EPRI 102323, MIL STD 461 E, IEC61000-6-2 and IEC61000-6-4

VERSIONS

- 230 Vac or 230 Vac + 400 Vac 3Ø or 120 Vac + 400 Vac 3Ø
- Solenoid check sources for ABPM 201, IM 201, NGM 204
- PIS particulate and iodine samplers
- Second pump for redundancy

ACCESSORIES

- Local & remote display units
- Calibration tools
- Software
- USB converters

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