



IM 201S

Iodine Monitor



Nuclear
Power



Healthcare



Homeland
Security
& Defense



Labs and
Education



Industrial and
Manufacturing

OVERVIEW

The IM 201S monitor forms part of the RAMSYS product line. It has been developed to continuously measure the gamma volumetric activity of radioactive iodine sample, in both molecular and organic forms (methyl iodine), contained in air drawn from stacks, ventilation ducts or working areas.

An NaI scintillation detector faces the activated charcoal cartridge in which radioactive iodine is trapped. The proximity of the detector and the cartridge, enclosed within a 4 π/5 cm (4 π/2 in) lead shielding, serves to optimize detection efficiency.

A radioactive ²⁴¹Am source built into the NaI crystal allows compensation of temperature and aging related drifts. The spectrometry capability, based on a 1024 channel spectrum analysis, allows radio iodine isotope localisation.

KEY FEATURES

- Embedded ²⁴¹Am source for energy spectrum stabilization against temperature changes and aging
- 1024 channels spectrum analysis
- 1E qualification and embedded safety related software
- Available under 10 CFR 50 App.B, IEC61226 and ASME NQA-1 programs for safety related application

RELATED MONITORS

- IM 201L: "light" version
- IM 201M: mobile version
- PING 206S: version with particulate and noble gas
- PIM 206S: version with particulate

PHYSICAL CHARACTERISTICS

- Radiation detected: gamma
- Detector: 1¼"x1" NaI(Tl) scintillator + PMT
- Iodine cartridge: 57.7 mm (2.27 in)
- Energy range: 100 keV to 3 MeV
- Typical energy windows: 314 - 414 keV (¹³¹I, E_γ 364.5 keV)
- 1024 channels spectrum
- Typical measurement range: 3.7 to 3.7 10⁺⁶ Bq/m³ (10⁻¹⁰ 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 +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: according to the filter dust loading

MECHANICAL CHARACTERISTICS

- Dimensions: 1280 mm x 830 mm x 680 mm (50.4 in x 32.7 in x 26.8 in)
- Weight: ~ 300 kg (~ 661 lb)
- Color: gray RAL 7030 (decontaminable paint)
- Inlet tube connection: Ø 12 mm OD (1/2 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 2 isolated RS485
- Alarm relays: 3 SPDT relays
- I/O: 2 isolated analog outputs and 1 isolated analog input (0/4-20 mA)

SIGNALING

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

REFERENCE STANDARDS

- Nuclear: IEC60761, IEC61171
- Environmental: IEC60780, IEC61323
- Seismic: IEC60980, IEC61344
- EMC: 2014/30/EU and 2014/35/EU, 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 source
- With or without dust filter holder
- Gas grab sampler ports

ACCESSORIES

- Calibration tools
- Software
- USB converters
- Ethernet
- ESD board

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