



## RAMSYS

# IM 201S™

*Seismic Iodine Monitor*

Continuously measuring the gamma volumetric activity of radioactive iodine sample, in both molecular and organic forms contained in air drawn from stacks, ventilation ducts or working areas. Can withstand seismic conditions.



## FEATURES

- Embedded  $^{241}\text{Am}$  source for energy spectrum stabilization against temperature changes and aging
- 1024-channel 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

## DESCRIPTION

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  $4\pi/5$  cm ( $4\pi/2$  in) lead shielding, serves to optimize detection efficiency.

A radioactive  $^{241}\text{Am}$  source built into the NaI scintillator allows compensation of temperature and aging related drifts. The spectrometry capability, based on a 1024-channel spectrum analysis, allows radio iodine isotope localisation.

## 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 (<sup>131</sup>I, E<sub>γ</sub> 364.5 keV)
- 1024-channel spectrum
- Typical measurement range: 3.7 to 3.7 10<sup>-6</sup> Bq/m<sup>3</sup> (10<sup>-10</sup> to 10<sup>-4</sup> µCi/cc)

## ENVIRONMENTAL CHARACTERISTICS

- Normal temperature: +5°C to +40°C (+41°F to +104°F)
- Temperature limit: -5°C to +55°C (+23°F to +131°F)
- MTBF: > 20 000 hours, with preventive maintenance
- TID: 100 Gy (10<sup>+4</sup> 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
- Environmental: IEC/IEEE 60780-323
- Seismic: IEC60980, IEEE344
- EMC: 2014/30/EU and 2014/35/EU, EPRI 102323, RG1.180, 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: MASS2, RAMVISION, SIMS2...
- USB converters
- Ethernet

Featuring:

