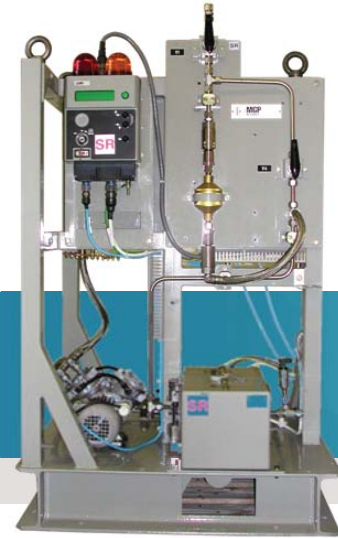




NGM 204S

Low Range Noble Gas Monitor



Nuclear
Power



Healthcare



Homeland
Security
& Defense



Labs and
Education



Industrial and
Manufacturing

OVERVIEW

The NGM 204S monitor from the RAMSYS product line has been developed to sample air in discharge stacks or ventilation ducts.

The dual silicon diode detector integrated in a 4 π/5 cm (4 π/2 in) lead shielded sample volume guarantees high reliability of the measurements.

The first silicon diode detects the beta/gamma radiation from sample volume and the gamma ambient radiation (background). The second one detects gamma radiation from the sample volume and the gamma ambient radiation.

This allows noble gas beta measurement with dynamic gamma compensation by the processing algorithm.

KEY FEATURES

- Dynamic gamma radiation compensation
- Calculation of the total released activity through a stack flow rate signal provided
- Compact and reliable
- 1E qualification and embedded safety related software
- RG 1.97 compliance
- Available under 10 CFR 50 App. B, IEC 61226 and ASME NQA-1 programs for safety related application

RELATED MONITORS

- NGM 204L: “light” version
- PING 206S: version with particulate and iodine
- PNG 206S: version with particulate
- PIS 203S: accident range particulate and iodine sampler
- NGM 203S: high range noble gas monitor

PHYSICAL CHARACTERISTICS

- 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:
 - ^{85}Kr : $3.7 \cdot 10^{+4}$ to $7.4 \cdot 10^{+13}$ Bq/m³ (10^{-6} to $2 \cdot 10^{+3}$ $\mu\text{Ci/cc}$)
 - ^{133}Xe : $3.7 \cdot 10^{+4}$ to $3.7 \cdot 10^{+12}$ Bq/m³ (10^{-6} to 10^{+2} $\mu\text{Ci/cc}$)

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: according to the filter dust loading

MECHANICAL CHARACTERISTICS

- Dimensions: 1305 mm x 830 mm x 680 mm (51.4 in x 32.7 in x 26.8 in)
- Weight: ~ 310 kg (~ 684 lb)
- Color: gray RAL 7030 (decontaminable paint)
- Inlet tube connection: \varnothing 12 mm OD (1/2 in)
- Outlet tube connection: \varnothing 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 (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: 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 3 \varnothing or 120 Vac + 400 Vac 3 \varnothing
- Solenoid check sources
- PIS sampler
- Dust filter holder
- Gas grab sampler ports

ACCESSORIES

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

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