RTM 2200

Radon/Thoron Monitor

Applications:

- for measurements of the activity concentrations of airborne **radon (^{222} Rn) and thoron (^{220} Rn)** in homes, at workplaces (including underground), field measurements
- Scalable multi-parameter measuring station
- for environmental monitoring
- for geophysical analysis (volcano monitoring, earthquake prediction)
- radon determination in water analysis
- automation & control
- gamma spectrography (optional)
- for protection against radioactivity
- building surveillance

Features:

- diverse connection options for additional sensors and actuators for complex measuring tasks
- connection of additional radon chambers (soil gas probe, room air sensor) for measurements at different locations with one monitor
- optional gamma detector (NaJ)
- measuring principle of high-voltage deposition resulting in excellent sensitivity
- desiccant cartridge not necessary
- DAkkS-accredited calibration according to DIN EN ISO/IEC 17025:2018

Radon measurement	*Internal*
Detector type	4 x 200mm² Si-detector with HV chambers
Internal volume	250 cm³ (total volume of the internal air loop)
Range	1 … 10 000 000 Bq/m³
Accuracy	<=5 %
Sensitivity	3 / 6.5 cpm/(kBq/m³) for fast / slow mode
Response time	15 / 120 min for fast / slow mode
Results / Analysis	radon concentration fast (excl. ^{214} Po) and slow (incl. ^{214} Po) thoron concentration storage of time distribution and spectra
Pump	high quality membrane pump flow rate 0.3 l/min controlled by processor
Gamma probe (option)	*Connected by a cable to front panel of the RTM 2200*
Detector	NaJ(Tl) with integrated PMT and HV supply Scintillation crystal 2“ x 2
Energy range	25 keV – 3 MeV
Resolution	<7.5% (Cs-137)
Results / Analysis	local dose rate, net activity of six user defined nuclides storage of time distribution and spectra
Dimensions of probe	diameter 60 mm, length 260 mm connection cable 5 m (optional 10 m)
Additional radon chambers	*Connected by a cable to front panel of the RTM 2200*
Soil gas probe	stainless steel probe for permanent installation in the soil, additional sensors for humidity and temperature (for specification see data sheet)
Indoor air sensor	like internal radon chamber, pump or diffusion (for specification see data sheet)
Results / Analysis	storage of time distribution and spectra
Additional sensors	
Standard	rel. humidity 0 …100%, accuracy ± 2% temperature -20 … 40°C, accuracy ± 0.5°C bar. pressure 800 … 1200mbar, accuracy 0.5% MW flow rate 0 … 0.6 l/min, accuracy ± 5% humidity/temperature sensor inside the int.air loop

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Air analytics (option)	CO, CO2, CH4, combustible gases etc., various ranges available
Water analytics (option)	pH-value, redox potential, conductivity etc.
Process (option)	pressure, differential pressure, flow rate, stream velocity, soil moisture etc.

General

Sampling	simultaneous sampling of all detectors/sensors with respect to the selected sampling program
Sampling intervals	storage of up to 16 sampling intervals with up to 32 steps (defined or infinite repetition) sampling interval from one second to weeks
Data storage	SD Card, 2 GB (bigger cards can also be inserted)
Operation / Display	touchscreen 6 x 9cm
Interfaces	USB, RS232, optional LTE-modem and other
Power supply	internal rechargeable battery 14,6V mains adapter 100-240V ~50/60Hz,1,8A
ATEX category	no
Dimensions / Weight	235mm x 140mm x 255mm / approx.. 6kg
Software	dVISION: control and data transfer, visualization, data management dCONFIG: system configuration, creating / changing cy-cles (also via Net Monitors) dLIBRARY: Nuclid library for NaJ gamma probe (option)
Extensions	Available at internal connectors: 8 analogous inputs, 3 counter inputs, 2 status inputs, 6 switch outputs, clock switch, PID regulator/analogous output
GPS (option)	GPS coordinates are recorded and stored together with the measurement results. GIS compatible *.kml files can be exported (can be opened by Google-Earth). antenna connected by cable
Environmental conditions	0…40 °C 0…95 % rH, non-condensing 800…1100 mbar

Accessories

Scope of delivery	charging adapter USB , RS-232 cables dust filter (2 pcs) PVC-tube (1,5 m) fuse (2 pcs) transport case manual & software (electronical) DAkkS-accredited calibration certificate according to DIN EN ISO/IEC 17025:2018
Optional	soil gas kits (pile drive probe or packer probe) exhalation bonnet AquaKit for measurements of radon in water measuring case water ingress protection

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