

RTM2200 soil gas

Radon/Thoron monitor with integrated measurement of the soil permeability



The new RTM2200 is the ultimate tool for a quick, accurate and reliable in situ Radon soil gas measurement (DIN EN ISO 11665-11) by a single keystroke. The implemented sampling cycle covers the determination of the soil permeability as well as the chamber flushing with fresh air at the end of the measurement. A water inlet protection switches off the pump in case of accidentally sucking of ground water. The integrated GPS receiver makes the later mapping of sampling points easy. The principle of real alpha spectroscopy over the entire measurement range makes the instrument the first choice for soil gas measurements. The advantages in overview:

- Fastest possible response and decay time; no delay times
- No interference by Thoron (Rn-220 – will be measured separately)
- No long term contamination by Po-210 even at permanent measurements at high Radon concentrations

The unit comes in a very robust and handy case for use in harsh environmental conditions. A signal light at the top of the case indicates the end of a measurement or warns in case of very low soil permeability.

The powerful software dVISION provides all functions for data management including the display of results in the integrated map (Google™ based) as well as the export to CSV or KML files.

Of course all functions required for typical applications (long- and short-term measurements, searching for entry paths, Radon in water or Radon exhalation) are implemented in the RTM2200.

Additional options:

- TDR probe for simultaneous measurement of the soil moisture as another important parameter for the evaluation of the Radon potential
- Blower door kit – contains a high-precision and long-term stable differential pressure sensor for very small pressure drops (range 0 ... 25 Pa) to measure pressure differences between individual rooms. This function is necessary to investigate Radon transportation in buildings
- Sensors for CO₂ and CH₄ integrated in the internal air loop

This specification sheet is for information purposes only and is subject to change without notice. SARAD GmbH makes no warranties, expressed or implied, in this product summary. © SARAD GmbH. All rights reserved.



RTM2200 – Technical Data

Radon chamber	
Detector	4 x 200 mm ² ion-implanted silicon detector
Internal volume	300 ml (total volume of the internal air loop including water inlet protection)
Range	0...10 MBq/m ³
Sensitivity	3 or 7 cpm/(kBq/m ³) for fast or slow mode
Response time	12 or 120 min for fast or slow mode
Analysis/Results	Alpha spectroscopy with separate calculation of Radon and Thoron concentration. Storage of the alpha spectrum for each data record
Pump	High quality membrane pump Flow rate 0.5 l/min controlled by processor
Fresh air flushing	Automatic switch over between fresh air and sample air inlet
Soil permeability	
Principle	Measurement of the pressure difference at regulated flow rate (1 l/min)
Range	$8 \cdot 10^{-12} \text{ m}^2 \dots 8 \cdot 10^{-14} \text{ m}^2$
Sampling	Tube connection to soil gas probe
Protection functions	
Battery voltage	Measurement will be stopped in case of discharged battery; hardware protection against deep discharge
Flow rate	Alert signal if flow rate cannot be maintained by the regulator
Pump power consumption	Measurement will be stopped in case of damaged or worn pump
Water inlet protection	Pump will be stopped as soon as water is sucked. Stainless steel can may be removed to drain the water

This specification sheet is for information purposes only and is subject to change without notice. SARAD GmbH makes no warranties, expressed or implied, in this product summary. © SARAD GmbH. All rights reserved.



Internal sensors	
Rel. humidity	0 ... 100%, accuracy $\pm 2\%$
Temperature	-20 ... 40°C, accuracy $\pm 0.5^\circ\text{C}$
Bar. pressure	800 ... 1200mbar, accuracy 0.5% MW
Flow rate	0 ... 2 l/min, accuracy $\pm 5\%$ @ 1 l/min
	Humidity/temperature sensor are integrated in the air internal air loop
Common	
GPS receiver	High accuracy by simultaneous reception of GPS, Galileo and GLONASS
Sampling programs	Continuous sampling (1, 5, 15, 30 and 60 minutes) Soil gas cycle (20 minutes) Additional cycles may be programmed by the user
Memory	SD card, 2 GB (approx.. 1 million data records)
Control/Display	Touch screen 6 x 9 cm wide, visible in direct sunlight Interfaces: USB and RS232
Power supply	Internal 12V NiMH rechargeable battery, AC/DC wall adapter
Dimensions/weight	235mm x 140 mm x 255 mm / approx. 6 kg (instrument only)
Case	Peli case 1430 with bulkhead fittings and signal light (W x D x H: 417 mm x 221 mm x 334 mm; weight 2.9 kg)
Software	dVISION/dCONFIG; server software for instrument access via internet
Included in delivery	Instrument with caser 12V/60VA AC/DC adapter USB – cable
Options	TDR soil moisture probe Differential pressure sensor 0 ... 25 Pa More sensors on request

This specification sheet is for information purposes only and is subject to change without notice. SARAD GmbH makes no warranties, expressed or implied, in this product summary. © SARAD GmbH. All rights reserved.

