

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.

