

RTM 2300 Spectroscopic Radon & Thoron Monitor



The state-of-the-art RTM 2300 radon and thoron monitor impresses with its versatility, precision and user-friendliness. It is the professional tool for air monitoring in difficult working environments, mining, geophysical investigations, nuclear medicine and for measuring soil air and water samples.

Applications:

- Radon and thoron measurements in indoor air, in soil gas, in ventilation ducts, etc.
- Search for radon entry paths
- Quality-assured radon soil air measurements
- Direct display and temperature-compensated measurement of radon content in water samples
- Determination of surface exhalation rates
- Process monitoring in the areas of NORM, TNORM, and nuclear medicine

The spectroscopic radon measuring chamber with higher sensitivity and accuracy makes continuous and quality-assured measurement of radon and thoron a child's play. The measurement method offers the shortest response and decay times and prevents progressive contamination of the measuring chamber by ^{210}Po . Thanks to the special design of the four measuring chambers, sensitivity remains stable even at high humidity, so no desiccant cartridge is required. Environmental conditions, operating states and relevant events are recorded by the device.

A flexible alarm system allows the user to implement their own warning and alarm functions. Gamma probes, the Aqua Kit, soil moisture probes, external weather stations and much more can be connected to the accessory sockets of the RTM 2300. The integrated GPS receiver provides the corresponding measurement location for map display in the dVISION operating software.

The large, bright color display with intuitive touch menus offers modern ease of use and access to all relevant information. With its configurable digital and analogue interfaces, the device can be integrated into any network. The RTM 2300 is manufactured entirely at our company location in Dresden and calibrated in our DAkkS-accredited calibration laboratory. Only high-quality components are used in the device, and thanks to its design and choice of materials, the RTM 2300 is almost completely recyclable.

The RTM 2300 'Soil Gas' version for professional radon soil gas measurements with simultaneous determination of soil permeability is delivered in a robust measuring case with a signal lamp on the lid. Leaky soil air probes are reliably detected thanks to the CO_2 sensor. If water is accidentally sucked in, the internal pump is automatically stopped. Valves ensure that the measuring chamber is flushed with fresh air after each measurement. Of course, this version has all the features of the standard device.

Applications:

- Continuous spectrometric measurement of radon and thoron
- High sensitivity, no contamination from Po-210
- Precisely controlled flow with integrated robust, durable, and quiet pump for reproducible thoron measurement
- "Soil Gas" version with determination of soil permeability during radon soil gas measurement, fresh air flushing, and quality assurance via integrated CO_2 sensor
- Protection against water ingress during soil gas and water measurements
- Up to four days of battery life
- Built-in GPS receiver
- Color touch screen with graphical display of spectra and measurement series
- Outstanding connectivity for system integration and connection of accessories
- Flexible, user-customizable alerting and warning system
- High data security thanks to proprietary controller architecture (no integrated PC solution with operating system)
- DAkkS calibration certificate for radon activity concentration
- Meets all requirements of DIN/IEC 61577-2
- Compatible with all relevant measurement methods in accordance with DIN/ISO 11665

RTM 2300

SPECIFICATIONS

Radon Measurement Chamber

Measurement principle	Measuring chamber with high-voltage deposition on silicon detector and alpha spectroscopy
Detector	4 x 200 mm ² Si detector with HV chambers
Intrinsic background	< 0.2 Bq/m ³
Nominal flow rate	0.5 l/min (> 72 hours continuously)
Internal volume	260 ml (total volume of the air circuit)
Measuring range	1 ... 10 000 000 Bq/m ³
Intrinsic accuracy	<= ±2 %
Sensitivity	4.2 or 8.5 cpm/(kBq/m ³) for fast or slow mode, respectively
Response time	15 or 120 minutes for fast or slow mode
Measurement/Analysis	Radon concentration fast (excluding Po-214) and slow (including Po-214) Thoron concentration, Radon concentration in water samples

Internal Sensors

Standard device	Relative humidity 0 ... 100 %, accuracy ±2 %, Temperature -20 ... 40 °C, accuracy ±0.5 °C, Barometric pressure 800 ... 1 200 mbar, accuracy 0.5 % MW, Flow rate 0 ... 4 l/min, accuracy ±5 %, Humidity/temperature sensors in the air circuit
Version Soil Gas	Differential pressure 0 ... 10 mbar (for high permeability), Differential pressure 0 ... 600 mbar (for low permeability), CO ₂ sensor 0 ... 10 % (VAISALA)
Optional	Additional sensors with analog or pulse signals can be connected to the AUX1 and AUX2 sockets, e.g., local dose rate probe, weather station, and much more.

General Information

Measurement	Simultaneous measurement with all detectors/sensors according to the selected measurement program
Measurement programs	Storage of up to 16 different measurement programs with up to 32 steps (defined or unlimited repetition) Time interval 1 second to weeks
Data storage	Micro-SD, 32 GB
Operation/Display	4,7" Color Touch-Screen
Interfaces	2 independent digital communication channels, Channel 1: USB, RS 232, RS 485 B, Channel 2: RS 485 A with MODBUS RTU, WLAN (optional), 2 analogous outputs, assignable to any measured value and measurement range
Power supply	12 V NiMH rechargeable battery (>72 hours continuously), Plug-in power supply 100 - 240 V ~50/60 Hz, 18 VDC / 1.8 A
Dimensions/Weight	235 mm x 140 mm x 255 mm / 6 kg
Software	dVISION
GPS	Highly sensitive GPS receiver usually provides position even indoors; coordinates are stored simultaneously with the measured values. Map view in dVISION, export of GIS-com- patible KML files.
Environmental conditions	0 ... 40 °C, 0 ... 95 % rH, non-condensing 800 ... 1,100 mbar
Scope of delivery	Charging power supply adapter External Temperature/Humidity sensor USB cable Dust filters (spare) Hose 6.35 mm x 3.18 mm (1.5 m) Fuse (spare) Transport case Manual & software (on https://sarad.de) DAkK-compliant calibration certificate according to DIN EN ISO/IEC 17025:2018
Optional accessories	Water ingress protection (standard on "Soil Gas" version) Soil test set (impact probe and/or packer probe) Exhalation bonnet Aqua kit for DACM32 for measuring radon in water Decay product measuring head for grab sampling (Markov) Measuring case for field applications with connections for tubes and power supply

