

RTM 2300 *ULTRA* Radon & Thoron Monitor With 2 separate channels



The RTM 2300 ULTRA radon and thoron monitor defines a new dimension in professional radon measurement technology. In addition to the measuring chamber with electrostatic collection and alpha spectroscopy, the device also features a highly sensitive scintillation measuring chamber (Lucas cell), combining the advantages of the two most advanced measurement principles for radon. The two measuring chambers can be used either as independent monitors or as a combined monitor for maximum sensitivity.

In addition to many applications that require two independent measuring channels, the Ultra version offers a unique quality assurance option.

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 GPS receiver provides the corresponding measurement location for map display in the dVISION operating software.

The large, bright colour 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 CO₂ 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.

Features:

- Two independent Radon measurement channels can be operated either separately or in combination
- Outstanding sensitivity especially for combined mode
- Combines the advantages of two physically different measuring principles
- 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 CO₂ 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

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

RTM 2300 *ULTRA*

SPECIFICATIONS

Measurement Chamber 1

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	<= ±2.5 %
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

Measurement principle	Scintillation chamber (Lucas cell)
Detector	Silicon photo multiplier
Operation mode	Diffusion through filter membrane
Internal volume	260 ml (total volume of the air circuit)
Measuring range	1 - 1 000 000 Bq/m ³
Intrinsic accuracy	<= ±3 %
Sensitivity	2235 cpm/(kBq/m ³)
Response time	120 minutes for fast or slow mode
Measurement/Analysis	Radon air concentration

Combined Measurement

Measuring range	1 - 1 000 000 Bq/m ³
Intrinsic accuracy	<= ±3 %
Sensitivity	31 cpm/(kBq/m ³)
Response time	120 minutes for fast or slow mode
Measurement/Analysis	Radon air concentration

Internal sensors

Standard device	Relative humidity 0-100 %, accuracy ±2 %, Temperature -20-40 °C, accuracy ±0.5 °C, Bar. 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), CO2 sensor 0-10 % (VAISALA)
Optional	Additional sensors with analogous or pulse signals can be connected to the AUX1 and AUX2 sockets, e.g., local dose rate probe, weather station, and much more.
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

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 hrs continuously), Plug-in power supply 100-240 VAC ~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), DAkKS-compliant calibration certificate according to DIN EN ISO/IEC 17025:2018
Optional accessories	Water ingress protection (standard for "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

