

EQF 3320

Particle size-specific radon and daughter product monitor



Applications:

- Radon and thoron measurements in indoor air, soil air, and water samples
- Correct dose determination of radon or thoron daughter product exposure
- Derivation of location-specific equilibrium factors for dose estimation using radon dosimeters
- Radiological assessment of interiors in clay houses
- Dose-relevant investigations into the size distribution of aerosols as carriers of radon and thoron daughter product activity

Features:

- Continuous spectrometric measurement of radon and thoron and their decay products from the same air sample
- High sensitivity, no contamination from Po-210

- Separate measurement of attached and unattached decay products
- Offset measuring head with minimized surface area to prevent the deposition of unattached decay products before they reach the measuring arrangement
- Tool-free and easy replacement of filter and screen, mesh size of screen optimized for maximum dust permeability
- Handy, portable design – measuring case with external mounting of the measuring head available
- Precisely controlled flow with integrated robust, durable, and quiet pump
- Battery operation for more than 30 hours * (depending on the nominal flow rate)
- Color touch screen with graphical display of spectra and measurement series
- Outstanding connectivity for system integration and connection of accessories
- Flexible, user-customizable alert and warning system
- High data security thanks to proprietary controller architecture (no integrated PC solution with operating system)
- DAkkS calibration certificate for radon, factory calibration in accordance with DIN/ISO/IEC 17025 for radon decay products

Technical data:

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	250 ml (total volume of the air circuit)
Measuring range	1 ... 10 000 000 Bq/m ³
Measurement accuracy	<= 5 %
Sensitivity	3.5 or 7 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

Follow-up product measuring head	<i>Removable, attaches to accessory adapter</i>
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measurement principle	Separation of radon decay products on a screen (unattached)
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	fraction) and a subsequent filter (attached fraction), alpha spectroscopy
Dimensions	Diameter 43 mm, length 59 mm
Detector	2 x 400 mm ² ion-implanted silicon detector
Filter	Membrane filter, 22 mm opening Filter breakage and contamination monitoring No tools required for filter replacement
Screen	Stainless steel screen, 30 mm opening No tools required for screen replacement
Nominal flow rate	1.5 l/min (> 30 hours continuously)
Measuring range	1 ... 100 000 Bq/m ³ (EEC) attached/unattached
Sensitivity	Approx. 1 800 cpm/(kBq/m ³) (EEC) attached Approx. 600 cpm/(kBq/m ³) (EEC) unattached
Response time	120 min
Measurement/Analysis	EEC, PAEC for unattached and attached radon and thoron decay products, respectively
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
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 analog outputs, assignable to any measured value and measuring range
Power supply	12 V NiMH rechargeable battery 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-compatible KML files.
Environmental conditions	0 ... 40 °C 0 ... 95 % rH, non-condensing 800 ... 1,100 mbar
Scope of delivery	Charging power supply adapter USB readout cable Dust filter (spare) Grid for RFP (spare) Aerosol filters (10) Hose 6.35 mm x 3.18 mm (1.5 m) Fuse (spare) Transport case Manual & software (electronic) DAkkS-compliant calibration certificate according to DIN EN ISO/IEC 17025:2018 for Rn-222 Factory calibration with certificate according to DIN for radon progeny products
Optional accessories	Water ingress protection Soil air kit (impact probe and/or packer test) Exhalation hood Aqua kit for DACM32 for measuring radon in water probes Measuring case with external mounting of the measuring head