

# ThoronScout

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The instrument allows the simultaneous activity concentration measurement of Radon ( $Rn222$ ) and Thoron ( $Rn220$ ) based on a diffusion type measurement chamber.

The required fast exchange rate of sampled air is realized by a highly permeable chamber placed outside the instruments enclosure. The relative Thoron sensitivity is comparable with the one of pump based instruments.

The modified measurement chamber has been derived from the Radon-Scout while the electronics come from the RTM1688-2. That means, more than 2000 data records including a complete alpha spectrum can be stored. Of course, sensors for barometric pressure, temperature and humidity are integrated too.

The Thoron Scout offers a larger Display compared with the Radon Scout. The replaceable bat-teries allow an autonomous operation of approximately one month. It is possible to operate the unit by mains power resulting in unlimited sampling periods. eded (independent of measurement cycle)

There is also a switch output which can be used for alert purposes or to control ventilation equipment.

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# ThoronScout – Technical Data

Measurement Range	0 .... 10 MBq/m <sup>3</sup>
Sensitivity	<p>Optimized high voltage measurement chamber with electrostatic collection of Radon progenies generated inside the chamber on a semiconductor detector</p> <ul style="list-style-type: none"> <li>▶ doubling of sensitivity for Radon in slow mode through inclusion of Po-214</li> <li>▶ no contamination with long-living radon progenies</li> <li>▶ 100% quality assurance through output of alpha spectrum for each interval</li> <li>▶ no influence of humidity on sensitivity</li> <li>▶ high sensitivity with small chamber volume (only ca. 60 ml)</li> <li>▶ Thoron: 0.42 cpm@kBq/m<sup>3</sup>, for Radon: 0.85/1.50 cpm@kBq/m<sup>3</sup> (fast/slow mode)</li> <li>▶ Thoron: 200 Bq/m<sup>3</sup> with 25% statistical error (1) at 4h measurement Interval</li> </ul>
Response Time	<p>Spectrometric analysis of short-living Thoron and Radon progenies measurement of Thoron (Rn-220) concentration fastest possible response time: immediately for Thoron, 95% of the final value after 12 minutes in fast mode for Radon</p>
Internal Sensors for	<p>Rel. Humidity 0 ... 100%, uncertainty ± 2%          Temperature -20 ... 40°C, uncertainty ± 0.5°C          Bar. pressure 800 ... 1200mbar, uncertainty 0,5% MW</p>
Integration interval	<p>1 minute to 4 hours adjustable in minute increments          Non-volatile memory for 2047 data records, each incl. alpha spectrum RS232 and USB interface for set-up or data transfer (GSM, ZigBee connec-table)          Integrated real time clock</p>
Controlling	<p>Backlit display (4 lines x 20 characters)</p> <ul style="list-style-type: none"> <li>▶ Controllable by a single switch, measurement/stand-by (lock-function)</li> <li>▶ Measurement principle: diffusion (no moving parts e.g. pump)</li> <li>▶ Internal buzzer for alert function and Radon-„Sniffing“</li> </ul>
Dimensions/ Weight	<p>175 mm x 135 mm x 90 mm,          1.1 kg (incl. batteries)</p>
Power supply	<p>2 x D-size cell, NiCd, NiMH or Alkaline and mains power          Operation time of battery: &gt; 30 days</p>
Power supply	<p>230 VAC- 50 Hz</p>
Software	<p>Radon Vision Software</p>

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