



RADONMAPPER

The RADONMAPPER unit is a versatile instrument designed to implement Radon detection, its quantitative measurement and mitigation.

The unit is highly stable, maintenance free and suitable for continuous radon monitoring campaigns indoor as well as outdoor.

RADONMAPPER is fully automatic, ruggedly designed to withstand industrial and hostile environments and also to operate 24 hours / 365 days per year.

No limits to the number of RADONMAPPER units you can deploy in a measurement campaign to implement a vast network. No software required, the RADONMAPPER user interface is accessible through standard computer browsers via network cable or **WiFi** protocol.

Environmental sensors to improve your detection

RADONMAPPER incorporates sensors to measure, at the same time, also:

- Temperature
- Humidity
- Atmospheric air pressure
- Accelerometer (to monitor possible unit displacement)

The unit has the capability to connect analogical or digital sensors linked via USB in order to collect other environmental parameters, e.g.:

- CO₂ (0-1% and 0%-30%)
- CO
- VOC
- Indoor differential pressure
- Automatic weather stations
- Gamma counter
- Flowmeters

It is also possible to connect Web-Electrical-Sockets to switch on/off electrical devices to control mitigation systems, hoods, heaters, controlled openings/closings.

✓ Easy to use

All data collected by one or more RADONMAPPER is synchronized with data coming from the connected sensors.

This allows to objectively understand the causes/effects that lead to a change in the Radon values.

The timing of sampling can be set from one minute (standard) up or down (**up to 2 seconds useful to detect the presence of Thoron**).

All data collected are immediately graphically and/or tabular visible and they can be selected and presented at your choice.

In the case of simultaneous use of more RADONMAPPER during a campaign, you have an automatic clock sync of each connected instrument, the same is for the recording timer setting.

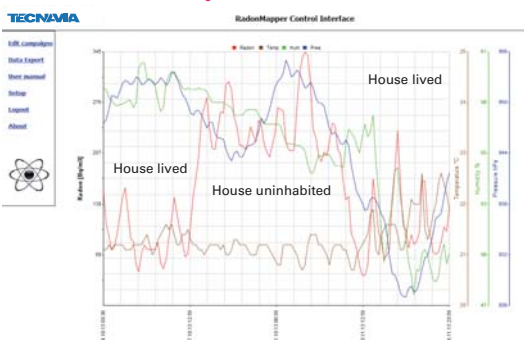
In this way the data tracking will be without mistakes and coherent on the timeline.

The unit is designed to operate also outdoor regardless of atmospheric events

220Rn Thoron detection

Complete system for discriminating Radon from Thoron in air, soil and building material

No software required



Accurate environmental monitoring

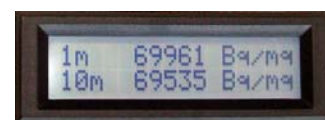
RADONMAPPER

CERTIFICATIONS

RADONMAPPER has been tested and approved by the following internationally recognized authorities

- METAS
- PSI
- BfS
- ENEA

DISPLAY



When operating in sniffing mode, the field measurements are real-time available on the integrated, retro illuminated (16 characters x 2 lines) LCD display or on the devices (smartphone, tablet or pc) connected via WiFi

DATA STORAGE



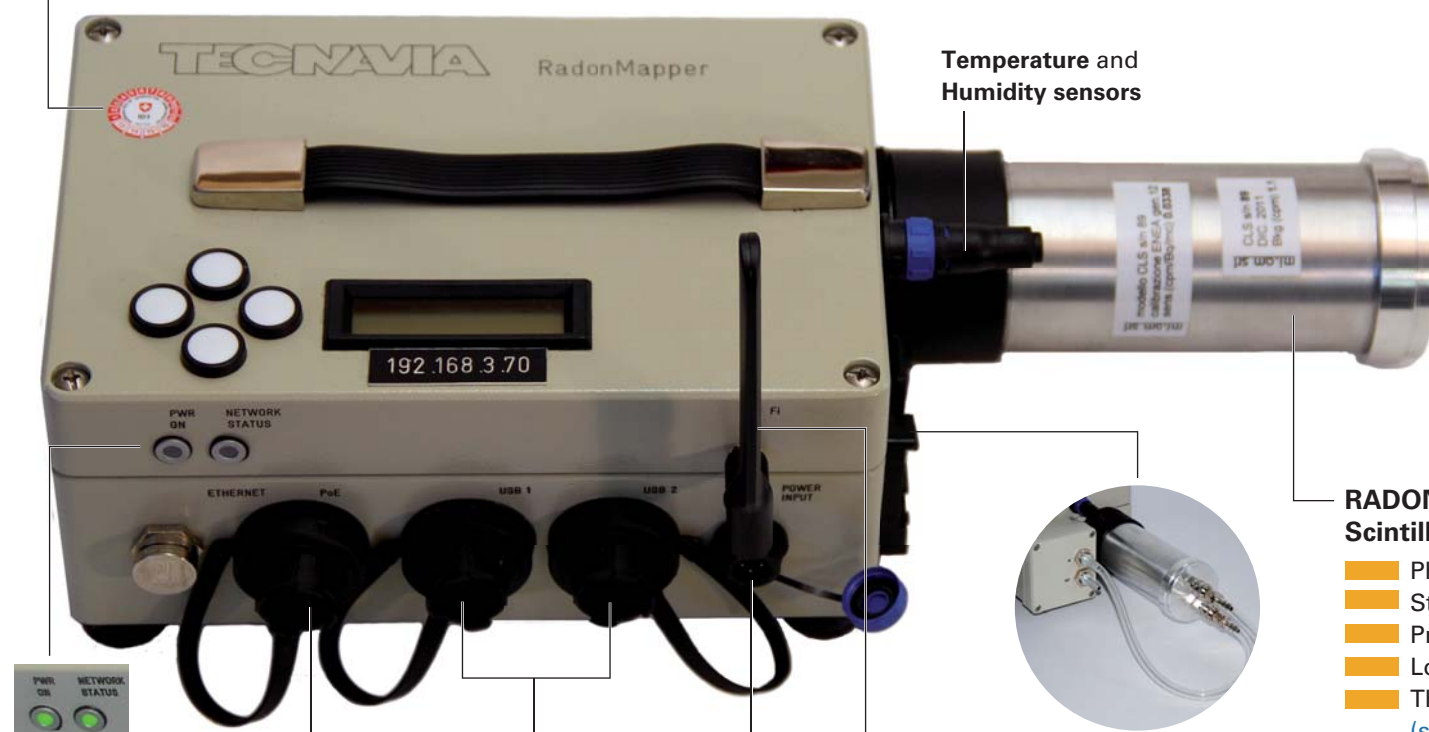
Data erase in order to free space is not necessary. All data collected by the unit are kept into two internal storages and can be stored up to 20 years. Also available storage on Cloud through WiFi or mobile connectivity with Web interface. Personal data area without space limits

POWER SOURCE



It can be energized in three different ways:

- Power over Ethernet (PoE) in a wired network configuration
- Standard power supply module from the main plus battery backup
- Rechargeable battery pack; standard endurance 10 h; possibility to connect additional batteries



Temperature and Humidity sensors

PASSIVE SAMPLING HEAD

Diffusion mode. Standard method for continuous sampling and official long term measurements. Available also in a version with more entry holes for faster gas circulation and quick equilibrium

RADON DETECTOR LUCAS CELL Scintillation Cell ZnS(Ag)

- Physical principle of operation: **very linear**
- Stability: **very stable** also with temperature, humidity, CO₂ variation
- Pre-treatment of the gas: **not necessary**
- Long-term stability: **2% in 24 months** at 1000 Bq/m³
- Thoron influence: **the continuous measurement at regular intervals (standard 60")** allows to understand the influences of Thoron
- Sensitivity: **0.035 cpm/Bq/m³**
- Sensor Life Expectancy: **unlimited**
- Maintenance interval: **subject for discussion with customer.**
- Non-significant influence to the contamination over time.**
- To correct cell response it is possible to set the background level
- Repeatability: **5%**
- Measurement range: **10 - 3'000'000 Bq/m³**; possibility to exceed the max range in controlled dilution mode sampling

ACTIVE SAMPLING HEAD

Flow through mode for active or grab sampling. Possibility to control the ingoing flow of the gas to be analyzed. Replaceable **diaphragm pump** (0,2-0,6 or 0,2-1,5 l/m)

Power and Network lamp. Automatically starts when energized. **Buffer battery** to prevent short power failure

Ethernet RJ45 10/100 Mbps, IEEE 802.3
Embedded **PoE** splitter IEEE 802.3af (for power)

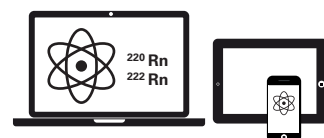
USB receptacles type A, ver 2.0, 480 Mbps

Power input 12 Vdc, 1.5 A (power supply included)

WiFi IEEE 802.11g adapter with external adjustable antenna

RADONMAPPER: attention to detail.

The ideal solution for your Radon and Thoron detection!



- Real-time monitoring**
- Remote access and monitoring** of every single RADONMAPPER or all the units at the same time through PC, tablet or smartphone

- Remote control** of the configuration parameters
- Needful for Short-Term measurement**
- Continuous measurement** with possibility of:
 - Set and send **automatic alarms** in case of surpassing critical levels (INDOOR, e.g. for RADON and CO₂)
 - Switch On/Off, automatically and with remote control, electrical contacts
- Accurate Thoron detection:**
 - 30' routine discriminative method for Thoron and Radon measurement
 - Discontinuous mode: cycles of 2" grab sampling / 10' of analysis
 - Continuous mode: two RadonMapper with ingoing / outgoing gas in sequence, grab sampling every 2" and analysis every 56"

TROLLEY CASE



Full set of three units assembled for easy campaign deployment. Embedded power supply from main.

Accurate environmental monitoring

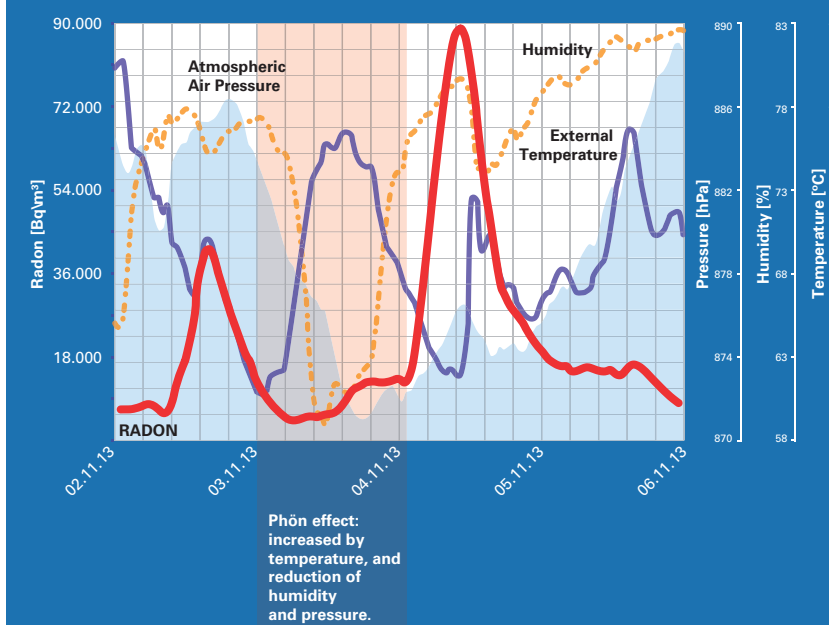
RADONMAPPER

Case History 1: Rehabilitation of a living house in Central Alps



Radon was present in high concentration and extremely variable. To sanitize efficiently at acceptable costs it is necessary to understand how Radon enters into the house. With RADONMAPPER it was possible to see the effects of the warm wind Phön

Radon - Basement - RADONMAPPER Unit 84 (192.168.0.84)

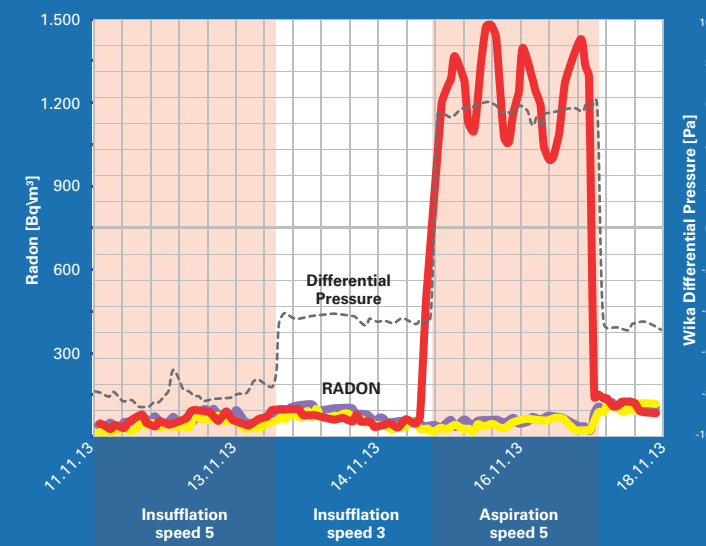


Case History 2: Optimization and dynamic house rehabilitation



The building was mitigated with the installation of a fan into the sub-slab at ground floor. To determine the optimal working conditions, some tests have been done with RADONMAPPER to accurately measure Radon concentration into different rooms

- **Radon - Sub-slab -** RADONMAPPER Unit 50
- **Radon - Children room -** RADONMAPPER Unit 82
- **Radon - Bedroom -** RADONMAPPER Unit 85



Make your life easier

RADONMAPPER APPLICATION FIELDS

	Diffusion mode	Active flow	Suggested additional sensors
 Air	✓	✓	All the sensors
 Soil Gas		✓	CO ₂ , CH ₄ , Automatic weather stations
 Water		✓ (*)	Temperature
 Building material	✓	✓	VOC, Formaldehyde
 Sniffing		✓	
 Grab sampling		✓	
 Very thin cracks, all kind of piping, suspect passages, etc.		✓	
 Job security e.g.: tunnels, excavations, aqueducts, sheds, underground rooms, etc.	✓	✓	CO ₂ , CO, Temperature, Humidity
 Research laboratories	✓	✓	All the sensors
 Schools, gyms, etc.	✓		CO ₂ , Temperature, Humidity
 Homes after energetic reconditioning	✓		CO ₂ , Temperature, Humidity
 Short-time measurements	✓	✓	Temperature, differential pressure
 Thoron (²²⁰ Rn)		✓	

(*) with Ostwald coefficient

RADONMAPPER Physical Specification

Main Unit:

- Dimensions: cm 41 x 16 x 13 (h)
- Weight: 3.5 Kg
- Temperature working range: -10 / +50 °C
- Humidity working range: 0-95% RH (non condensing)
- Pressure working range: 700-1100 hPa

Embedded Environmental Sensors:

• Ambient temperature

Sensor type: solid state chip
Range: -40 / +50 °C
Resolution: 0,1 °C
Accuracy: +/- 1 °C

• Relative air humidity

Sensor type: solid state chip
Range: 0 / 100% RH
Resolution: 1% RH
Accuracy: +/- 3% RH

• Atmospheric air pressure

Sensor type: piezo resistive chip
Range: 700 / 1100 hPa
Resolution: 0,1 hPa
Accuracy: +/- 2 hPa

• Movement sensor

Sensor type: silicon accelerometer

Battery pack:

Pb rechargeable batteries maintenance free, 12 Vdc, 4 Ah

WWW.RADONMAPPER.COM



Made in Switzerland

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TECNAVIA SA

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