



## 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.:

- CO<sub>2</sub> (0-1% and 0%-30%)
- CO
- VOC
- Indoor differential pressure
- Automatic weather stations
- Gamma counter
- Flowmeters

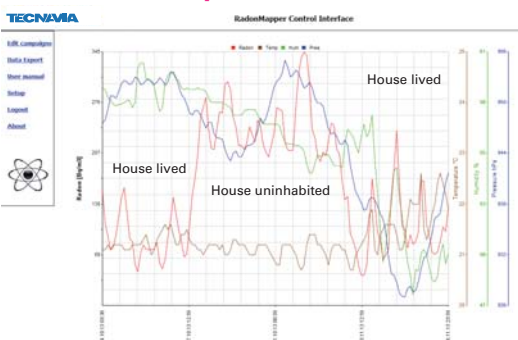
It is also possible to connect Web-Electrical-Sockets to switch on/off electrical devices to control mitigation systems, hoods, heaters, controlled openings/closings.

*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



### ✓ 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.

*Accurate environmental monitoring*

# RADONMAPPER

## CERTIFICATIONS

RADONMAPPER has been positively 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



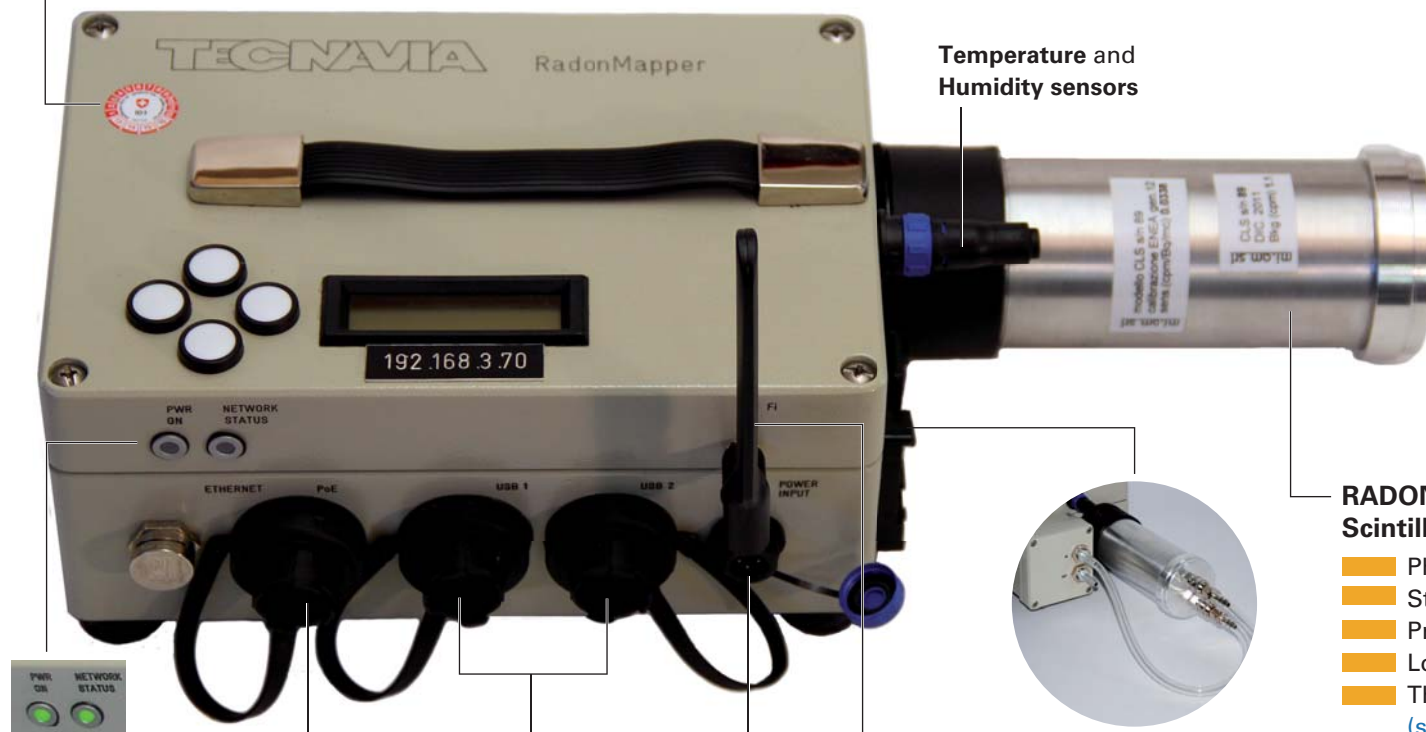
Data erase in order to free space is not necessary. All data collected by the unit are kept into two internal storages and can be stored up to 20 years. Also available storage on Cloud through WiFi or mobile connectivity with Web interface. Personal data area without space limits

## 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



**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

**Temperature and Humidity sensors**



**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)

**RADON DETECTOR LUCAS CELL**  
Scintillation Cell ZnS(Ag)

- Physical principle of operation: **very linear**
- Stability: **very stable** also with temperature, humidity, CO<sub>2</sub> variation
- Pre-treatment of the gas: **not necessary**
- Long-term stability: **2% in 24 months** at 1000 Bq/m<sup>3</sup>
- Thoron influence: **the continuous measurement** at regular intervals (standard 60") allows to understand the influences of Thoron
- Sensitivity: **0.035 cpm/Bq/m<sup>3</sup>**
- 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/m<sup>3</sup>**; possibility to exceed the max range in controlled dilution mode sampling

## 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

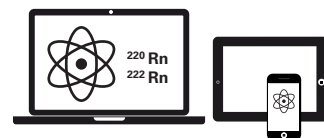
## TROLLEY CASE



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

## 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 CO<sub>2</sub>)
- 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"

Accurate environmental monitoring

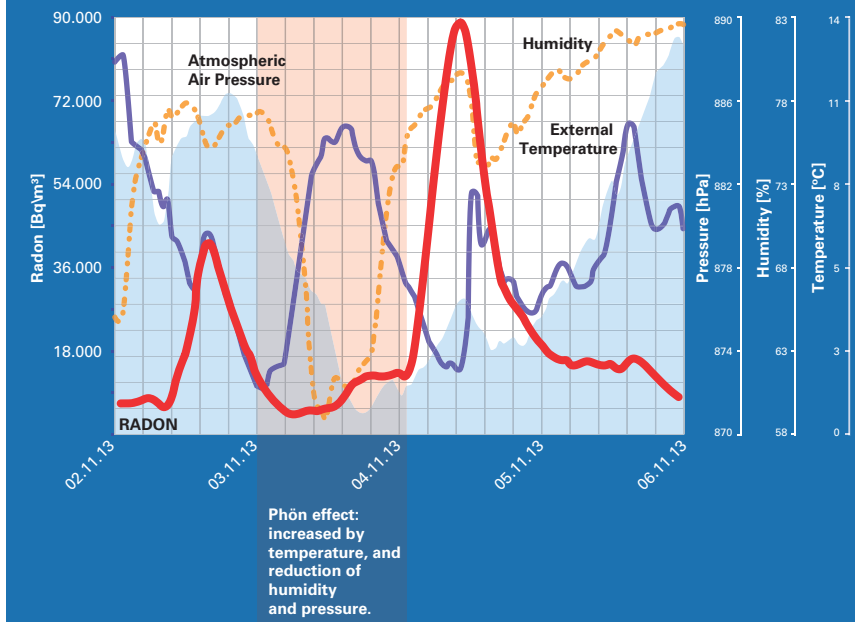
# RADONMAPPER

## 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

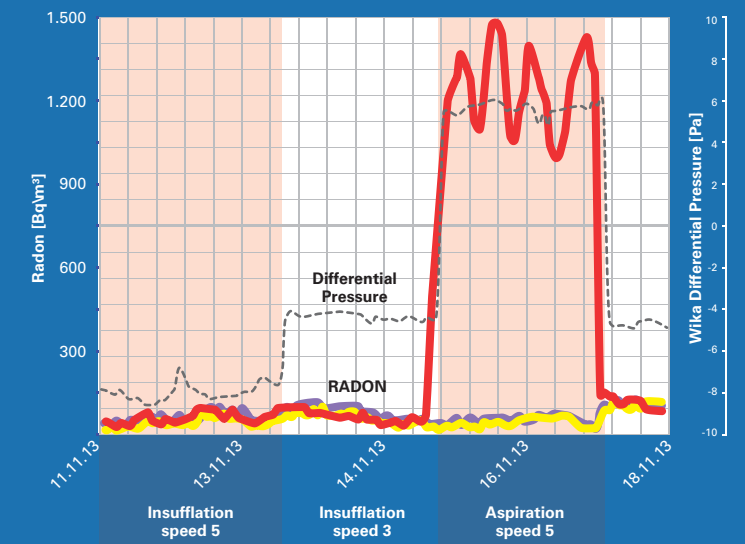


The building was mitigated with the installation of a fan into the sub-slab at ground floor. To determine the optimal working conditions, some tests have been done with RADONMAPPER to accurately measure Radon concentration into different rooms

### 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 <sub>2</sub> , CH <sub>4</sub> , Automatic weather stations
 Water		✓ <sup>(*)</sup>	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 <sub>2</sub> , CO, Temperature, Humidity
 Research laboratories	✓	✓	All the sensors
 Schools, gyms, etc.	✓		CO <sub>2</sub> , Temperature, Humidity
 Homes after energetic reconditioning	✓		CO <sub>2</sub> , Temperature, Humidity
 Short-time measurements	✓	✓	Temperature, differential pressure
 Thoron ( <sup>220</sup> 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](http://WWW.RADONMAPPER.COM)



Made in Switzerland

# TECNAVIA

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