GVZ components
Your Sensing Solutions

WRD100

Radon sensor

Detection of alpha particles - Radon module 5V - UART



In response to growing market demand for radon detection, **GVZ Components** is pleased to introduce a highly reliable radon sensor, extensively tested to ensure dependable performance. This new addition to our product portfolio allows us to meet our customers' needs with a trusted solution for monitoring radon levels and supporting safer indoor environments.

"Radon is a naturally occurring radioactive gas that is colourless, odourless and tasteless. It is released from soil, water and certain building materials containing trace amounts of uranium, such as granite, tuff, porphyry, basalt and pozzolanic cement."

When radon accumulates in enclosed or poorly ventilated spaces, it can pose a serious health risk. Its radioactive decay produces alpha particles that, when inhaled, can damage lung tissue and increase the risk of developing lung cancer.

The World Health Organization (WHO) identifies radon as the second leading cause of lung cancer after smoking, with more than 10% of lung cancer cases worldwide attributed to radon exposure.

The WRD100 module

The **WRD100** is a high-reliability module designed for radon concentration monitoring. It achieves precise and low-power detection by capturing alpha particles released from radon in the environment, featuring stable performance and rapid response.

Data communication is handled via a **UART** interface. Its integrated design enables quick adaptation to various terminal devices. Powered by a 5V DC input, the module boasts a compact and flexible deployment structure, with a free-flowing design suitable for most civilian applications.

Features & Benefits

- Maintenance and calibration free
- UART signal output
- Small size
- High data refresh rate
- Long lifetime (>10 years)

Applications

- Ideal for long-term real-time monitoring of indoor radon levels in homes, schools, offices, and similar spaces

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WRD100

Radon sensor

WRD100 TECHNICAL FEATURES	
Product model	WRD100
Probe gas	Radon gas
Detection zone	0~20000, unit: Bq/m3
Working voltage	DC 5 V±0.1V
Working current	≤10mA
Output	UART output (TTL level, 3.3 V), 9600bps
Preheating time	3min
Resolution ratio	1Bq/m3
Data refresh interval	1 minute (4-hour moving average)
Service environment	Temperature 5°C~40°C Humidity: 15% RH to 70% RH (no condensation)
Storage environment	Temperature -10°C~60°C Humidity: 15% RH to 85% RH
Outline dimension	53mm × 43mm × 28mm
Product weight	Approximately 25 grams

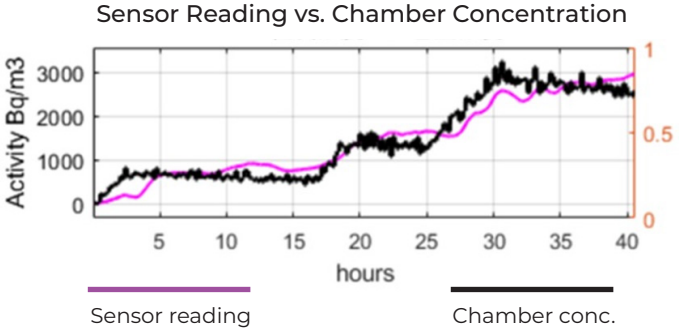
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Regulatory and health reference levels

- 100 Bq/m^3 (WHO Recommendation): Reference level recommended by the World Health Organization (WHO) for residential buildings. Where local conditions make this target difficult to achieve, the WHO recommends not exceeding 300 Bq/m^3.
- 200 Bq/m^3 (New Buildings): Maximum reference level established by Italian legislation (Legislative Decree No. 101/2020) for residential buildings constructed after 31 December 2024.
- 300 Bq/m^3 (Existing Buildings and Workplaces): Reference level for existing residential buildings and all workplaces under Italian and European regulations.

How to Set Alarm Thresholds on a Detector

Radon levels can fluctuate significantly over short periods due to changes in atmospheric pressure, ventilation, heating, and rainfall. For this reason, instantaneous alarms should not operate in the same way as those for carbon monoxide or methane. Instead, they should be based on long-term exposure levels.
Refer to the user manual instructions to adapt the proper detecting level in accordance with the installation.



Laboratory Test results

Laboratory tests conducted in a dedicated radon exposure chamber have demonstrated the sensor's good detection sensitivity and rapid response to radon exposure.