Nesos Group
INTELLIGENT PROPERTY MANAGEMENT

LoRAD Pro – Radon Monitor

Product Sheet

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Document overview

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Confidentiality Statement.

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LoRa Alliance®

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Overview

Nesos Group offers an intelligent, cost-effective radon monitor which is currently undergoing the certification process through the LoRaWAN Alliance. It will be the only certified radon sensor available on the market globally. Our device provides real-time monitoring of radon levels and seamless integration into a wider Internet of Things (IoT) ecosystem. The system is ideal for ensuring compliance, protecting occupants, and reducing emergency maintenance costs through early detection and predictive insights.

More accurate than other home monitors

The leading radon counting sensitivity of 30 counts per hour per pCi/L , is 15 times more counting sensitive than the minimum standard of ANSI/AARST.

Fast Results

Find radon result in minutes not days. Get the first radon result in 10 minutes. A highly reliable result within 60 minutes.

THE IoT Based Radon Detection Solution

It integrates the lates LoRa wireless technology and a cloud platform.

Metal finish Design

Modern aluminium alloy body give a real "metal finish" high quality touch.

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Sensor Specification

- Sensor Type: Pulsed ion chamber
- First reliable data output: < 1 hour
- Data display interval: 10 min update (1-hour moving average)
- Radon Count Sensitivity: 30CPH (Count Per Hour) per 1pCi/L
- Measurement Range: 0.2 ~ 99.9 pCi/l (1~3700 Bq/m³)
- Radon Accuracy/Precision: < 10% at 10pCi/l (370 Bq/m³) after 10 hours
- Connectivity: LPWAN (Low-Power Wide-Area Network)
- Radon Alarm: Integrated audio alarm + color LED indicator
- Radon Level Visual Indicator: 3-Color LED
- Power Consumption: DC 12 ± 0.1V, 65mA (12V DC adapter)
- Operating Range: 0°C ~ 40°C, RH < 80%
- Size: Φ80mm x 140mm, 380g

Key Sensor Features

- LoRaWAN-enabled device with long-range, low-power communication
- Real-time monitoring with configurable alert thresholds
- Currently undergoing certification through the LoRaWAN Alliance. It will be the only certified radon sensor on the market
- A scalable, cost-effective alternative compared to other models currently available which start at €600 per unit
- Faster reliable results then other radon monitors
- Build quality is far superior to competitors

LoRa Module Specification

The LoRaWAN module embedded in the sensor is a Dragino LA66, a small wireless LoRaWAN module that covers a very compelling mix of long-range, low power consumption, and secure data transmission.

LA66 is a ready-to-use module that includes the LoRaWAN v1.0.3 protocol. The LoRaWAN stack used in LA66 is used in more than 1 million LoRaWAN End Devices deployed world wide. This mature LoRaWAN stack greatly reduces the risk to make stable LoRaWAN Sensors to support different LoRaWAN servers and different countries' standards. External MCU can use AT command to call LA66 and start to transmit data via the LoRaWAN protocol.

Each LA66 module includes a world-unique OTAA key for LoRaWAN registration.
Besides the support of the LoRaWAN protocol, LA66 also supports open-source peer-to-peer LoRa Protocol for the none-LoRaWAN application.
LA66 is equipped with TCXO crystal which ensures the module can achieve stable performance in extreme temperatures.

- CPU: 32-bit 48 MHz
- Flash: 256KB
- RAM: 64KB
- LoRa Rx current: <9 mA
- LoRa Tx Current: <90 mA at +17 dBm, 108 mA at +22 dBm
- I/O Voltage: 3.3v
- Input Power Range: 1.8v ~ 3.7v
- Power Consumption: < 4uA.
- High sensitivity: -148 dBm
- Frequency Range: 150 MHz ~ 960 MHz
- Maximum Power +22 dBm constant RF output
- Temperature
    - Storage: -55 ~ +125℃
    - Operating: -40 ~ +85℃
- Humidity
    - Storage: 5 ~ 95% (Non-Condensing)
    - Operating: 10 ~ 95% (Non-Condensing)

LoRa Module Features

- Support LoRaWAN v1.0.3 protocol Support peer-to-peer protocol
- Firmware upgradable via UART interface
- Ultra-long RF range
- World-wide unique OTAA keys.
- AT Command via UART-TTL interface
- SMD Antenna pad and i-pex antenna connector
- Available in different frequency LoRaWAN frequency bands.
- TCXO crystal to ensure RF performance on low temperature

Certifications

Testing chamber Specifications

Parameter	Range of control	Stability
Radon concentration	0.5-9999(Bq/m3)	+/-2% ~ +/-10%
Radon daughter concentration	<(0.02—5) WL	+/-2% ~ +/-10%
Aerosol concentration	(103—105) cm3	+/-3%
Air exchange	<(0.006—0.06) /min	+/-2% ~ +/-10%
Temperature	(5—35) 0C	+/-10C
Relative humidity	20% ~ 80%	+/-2%

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