Operation Manual

Radon Detector

CONTENTS

1. Technical specifications

- Sensor: Semiconductor radon sensor
- Measurement range: 3.3Bq - 37kBq/m^3 (0.09 - 1000pCi/L)
- Measurement accuracy: ±15%
- Time for first data display: 6 hours
- Reliable data measurement time: 6 hours later (when radon concentration is higher than 190Bq/m^3); 12 hours later(when radon concentration is 94-190Bq/m^3); 24 hours later(when radon concentration is lower than 94Bq/m^3).
- Data update time: 60 minutes
- Battery life: 45 days (in screen-off state)
- Charging interface: TYPE-C interface (green light is on continuously when charging, turns off when fully charged)
- Charging time: About 3.5 hours to fully charge (in shutdown state)
- Alarm time: Sounds for 20s every hour after exceeding the limit.
- Detection environment:,-14~113℉（-10～45℃）, RH<90% (inaccurate data when working out of range)
- Battery capacity: 2000mAh.

2. Main features

- Utilizes a semiconductor radon sensor.
- Equipped with a color TFT 2.0 screen and a graphical UI interface for simpler and more convenient operation.
- Patented radon filtration and radon signal screening technology and an adaptive integration algorithm.
- Data is displayed for the first time 6 hours later. The value within the recent 6 hours is the real-time measurement value of the current environment. At the same time, it records various viewable data such as accumulated average, 24h value, 48h value, 72h value, 96h value, accumulated peak, etc.
- The radon concentration alarm threshold and alpha particle sound can be set, and the sound switch can be controlled.
- This device provides the function of viewing radon concentration historical records. The single record can view the data overview of up to 504 days. It records once every 6 hours, and there are up to 10 sets of detection records.
- Automatically starts re-measuring when powered on, and can also be manually re-measured.
- There is a countdown prompt for the first data update to make it more intuitive to know when the data will be updated.

● In the screen-off state, it enters a low-power consumption mode. While having ultra-long battery life, it can still perform normal data monitoring, data recording and radon concentration alarm.

● Language: Chinese, English

● The colored progress bar can indicate different color zones according to the change of radon concentration value.

● Has calendar and clock functions. After shutdown, the clock can operate normally.

3. Technical specification

● This Radon Detector is a portable radon concentration monitor designed to measure alpha ionizing radiation generated by radon decay. Equipped with a semiconductor radon sensor, it enables rapid detection of radon levels. The device features a color TFT 2.0 screen and an intuitive UI menu interface combined with keys for simplified operation. When the detected radon concentration exceeds the preset alarm threshold, the system triggers an audible and visual alert to promptly notify users, ensuring timely safety measures can be implemented.

● This Radon Detector is widely used for environmental radon level monitoring in mines, basements, and poorly ventilated residential buildings, as well as for investigation and assessment of radon concentration in soil at civil construction project sites.

4. Limits on radon concentration

The radon concentration standard varies from region to region (148 Bq/m^3 by default), but there are generally some basic standards.

EPA(USA standards)	≤4pCi/L (equivalent to 148Bq/m^3)
WHO standards	≤100Bq/m^3, when > 300 Bq/m^3, it is strongly recommended to take corrective measures.
EURATOM (European standards)	< 300Bq/m^3

The simplest way to reduce indoor radon concentration is to enhance indoor ventilation. When the radon concentration exceeds 4 pCi/L (148 Bq/m^3), ventilate for at least 10 minutes or more.
Note: 1 pCi/L = 37 Bq/m^3.

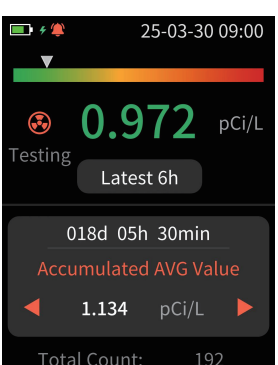
5. Key instructions

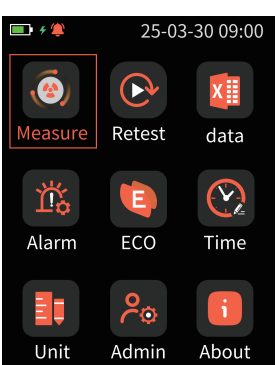
Logo	Identification	Function definition
◀	Left/up	Left or up to choose
⏻	Power	Power on/off; confirm
▶	Right/Down	Right or down to choose

6. Operating instructions

After power-on, the device directly enters the "Measure". Press the " ⏻ " to exit the "Measure" and enter the main menu.

Move the cursor to the "Measure" and press the " ⏻ " to enter the measurement interface again.





Press the “ ◀ ” or the “ ▶ ” to switch between "Accumulated AVG Value", "Latest 24h Value", "Latest 48h Value", "Latest 72h Value", "Latest 96h Value", and "Accumulated Peak Value" to view different types of detection data.

The default state is "Accumulated AVG Value", and if there is no operation for 50s, it will automatically switch to "Accumulated AVG".

● **"Retest"**

① Select the "Retest" on the main menu and short press the “ ⏻ ” to confirm.

② Short press the “ ◀ ” or the “ ▶ ” to choose "Yes" or "No" and confirm. If you choose "Yes", it will return to the "Measure".

After the retest, the data of the previous test will be saved and the test data will be reset.

● **"Data"**

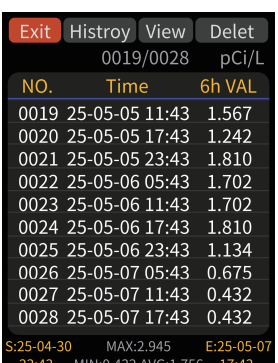
Select the "Data" in the main menu, short press the “ ⏻ ”, and then select the data to be viewed.

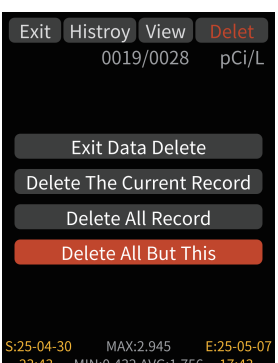
"6h VAL": Represents the integrated radon concentration value in every 6-hour interval.

① Select "History", and short press “ ⏻ ” to switch different numbered historical data. Each time a remeasurement is done, a historical data with a number will be generated.

② Select "View", after pressing the “ ⏻ ”, short press the “ ◀ ” or the “ ▶ ” to select and view data up and down. Press the “ ⏻ ” again to exit data browsing.

③ Select "Delete", short press the “ ⏻ ” and a deletion interface will pop up. According to needs, you can select "Delete The Current Record", "Delete All Records" and "Delete all But This". After short pressing the “ ⏻ ”, a pop-up box will appear for secondary confirmation (if the number of the historical record to be deleted is "1", that is, the historical record currently being detected, then the measurement will start again).



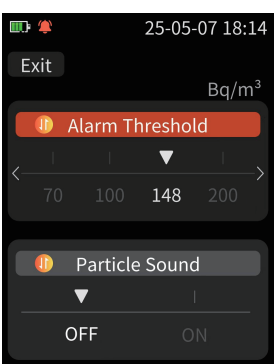


● "Alarm"

It includes the modification of the alarm threshold for radon concentration and the switch for alpha particle detection alert.

① Select "Alarm" and short press the " ⏻ " to confirm.

② Short press the " ◀ " or the " ▶ " to select the alarm threshold for radon concentration. The default value is 148 Bq/m³ (including 100 Bq/m³, 148 Bq/m³, 200 Bq/m³, 300 Bq/m³, 400 Bq/m³, 600 Bq/m³, 800 Bq/m³) or the particle sound switch. The particle sound is off by default. Short press the " ⏻ " to confirm the settings.



● **"ECO"**

The "ECO" mode can set the sleep time and volume switch.

① After entering the "Settings" , select "ECO" and short press the " ⏻ " to confirm. Short press the " ◀ " or the " ▶ " to choose "Sleep" or "Sound" and confirm.

②. Short press the " ◀ " or the " ▶ " to select the sleep time. The default is 10min (including 30s, 1min, 2min, 5min, 10min, 15d) or the sound switch. The sound is on by default. Short press the " ⏻ " to confirm the settings.

● **"Time"**

It includes the settings for year, month, day, hour, minute and second.

① After entering the "Settings", select "Time" and short press the " ⏻ " to confirm. Short press the " ◀ " or the " ▶ " to choose "Year" or "Month" or "Day" or "Hour" or "Minute" or "Second" and confirm.

② Short press the " ◀ " or the " ▶ " to select the corresponding time value, and click the " ⏻ " to confirm the settings.

● **"Unit"**

① After entering the "Settings", select "Unit" and short press the " ⏻ " to confirm. Short press the " ◀ " or the " ▶ " to choose radon concentration unit or temperature unit and confirm.

② Short press the " ◀ " or the " ▶ " to select the radon concentration unit, either Bq/m³ or pCi/L. Short press the " ⏻ " to confirm the settings.

● "Admin"

Select the "Admin" on the main menu, short press the " ⏻ " to confirm. Press the " ◀ " or the " ▶ " to select "Chinese" or "English", and then press the " ⏻ " to confirm the setting.

This Admin function is not available to the public.

● "About"

Select the "About" on the main menu, short press the " ⏻ " to confirm, and then short press the " ▶ " to page down to the bottom. The device name and version are displayed in detail.

● Screen Lock

Press the " ◀ " and the " ▶ " simultaneously to lock or unlock the screen. When the screen is locked, if the current interface is not in the measurement interface, it will automatically switch to the measurement interface.

7. Precautions

1. When the instrument indicates low battery power, please charge it in time to ensure the normal monitoring of the measuring equipment.

2. Avoid vibrations of the instrument to prevent affecting the detection accuracy.

3. Due to the randomness of radon alpha decay, when measuring low-concentration radon, the count value may exhibit an uneven distribution phenomenon, or there may be slight differences in measurement results between different devices. This is a normal phenomenon and not an inaccuracy of the instrument.

4. After measuring high-concentration radon, residual radon and radon daughters will be adsorbed inside the equipment. Complete decay may take between 24 hours and 3.8 days, depending on the radon pollution level. Therefore, after measuring high-concentration radon, it is recommended to wait 24-48 hours before obtaining effective measurement data every time the measurement location is changed.

8. Q&A

Q1: The screen doesn't show data and the value shows "--". What does it mean?
A: The minimum test time for the first data appearance is 6 hours. Please wait.

Q2: What does the occasional green light flashing mean?
A: When the device detects alpha decay of radon, the green indicator light will flash once.

Q3: What does the occasional "beep" of the buzzer mean?
A: If the particle sound function is turned on, when the device detects alpha decay of radon, the buzzer will sound once.

Q4: What is the total count?
A: It is the count value of detecting alpha decay of radon. The radon concentration value is calculated by integrating this count value.

Q5: How to accurately measure when the environmental humidity is higher than 90%?
A: The current high detection environment humidity will affect the detection result. It is recommended to control the relative environmental humidity within 90%, or place granular desiccant at the bottom or on both sides of the air inlet of the instrument (note not to use powder desiccant).

Q6: What does the red light flashing mean?
A: When the radon concentration exceeds the alarm limit, the red light and buzzer will simultaneously trigger an alarm.

9. What is radon?

Radon is a dangerous radioactive gas. It is colorless, odorless, and tasteless, and cannot be detected by human senses alone. Its density is eight times that of air. Basements, schools, and houses with underground facilities are prone accumulate high concentrations of radon, which is very dangerous! The half-life of radon is 3.82 days, but it is always present in our surrounding environment. Moreover, the period with the highest radon concentration is at dawn when most people are sleeping.

Hazards: When inhaled into the body, the alpha particles emitted during radon decay can cause radiation damage to the human respiratory system and lead to lung cancer. It is especially fatal to infants and pregnant women. According to the average radon level in a country, radon is estimated to cause 3% to 14% of all lung cancers.

Sources: Radon mainly exists in the soil, and natural building materials are the most important source of indoor radon.

Commonly used control measures: The simplest and most effective way to reduce indoor radon concentration is to enhance indoor ventilation. When the radon concentration exceeds 4 pCi/L (148 Bq/m^3), ventilate for at least 10 minutes or more.

10. Safety tips

This device is not waterproof. Please do not drop or to severe vibration to avoid damage.