QUARTA

20 years of experience in developing radiation detection technology for consumers and government agencies.

SIRAD MR106 Quick Start

Conditions for use Inside residential and similar living spaces, with a room temperature ranging from 50 °F to 95°F and relative humidity not exceeding 65% at a room temperature of 77°F.
If the unit is being used in temperatures lower than 30°F, then it must be kept "warm" at a regular room temperature (no lower then 65°F) for a day, prior to actual use.

UNIT MODES AND RADON DETECTION

Measuring radon activity is performed by a single detector, while calculations can be done via three different algorithms. The first measurement appears after 4 hours of detection.

The unit includes three algorithm to compute the values of radon activity:

Threshold
"Threshold" algorithm estimates the value of the level of radon activity based on the rate of formation of alpha-particles and provides timely information about its value.

The current
"Current" algorithm determines the value of the activity level of radon based on the number of alpha particles within a minimum detection cycle of 4 hours.

Average
"Averaging" algorithm determines the arithmetic mean of the radon activity level for each measurement period based on the number for the alpha-particles emitted between 4 hours to 3360 hours, depending on the number of detection cycles performed.

The unit also has three operation modes:

The Detection mode - the default mode: levels of radon activity being recorded from the moment the unit is turned on and until it is turned off, with measurement cycles of 4 hours;

Menu Mode - general unit settings, such as language, sound, etc.

Energy-saving mode - becomes active on battery power only: after one minute from the when it is turned on, the unit goes into power-saving mode, during which the display is not showing anything, while the charge indicator shows up in quick bursts, until the mode is deactivated.

Tip: even if the batteries are removed, the data and settings remain stored in unit's memory.

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Operating functions

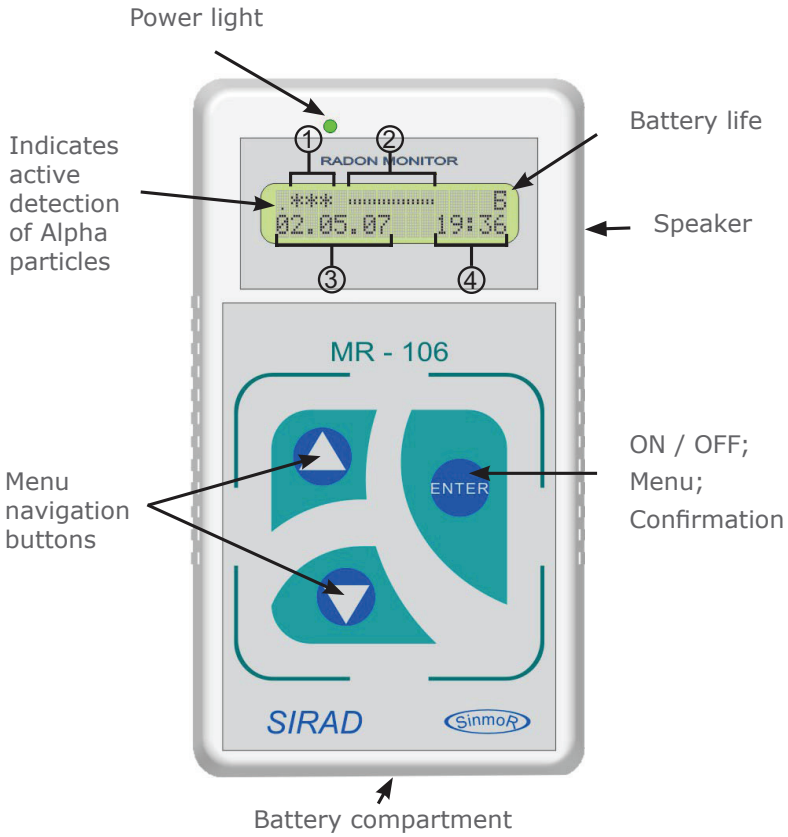
To turn the unit on or off, press and hold the ENTER button for 3 seconds.
To enter the menu, press the ENTER button once.

UP button - navigates up through menu options; setting date and time; volume increase, while in Detection mode - shows remaining charge settings.

DOWN button - navigates up through menu options; setting date and time; volume increase, while in Detection mode - shows remaining charge settings. If pushed and held prior to turning the unit on, the screen will show the factory ID number.

ENTER

ENTER button - On / Off power button for the unit. If pushed once - enters the menu options. Used to confirm chosen options.



① Threshold detection levels:

Empty field
radon levels are lower than 50 Bq/m³

* radon levels: 50 to 100 Bq/m³

** radon levels: 100 to 200 Bq/m³

*** radon levels: 200 Bq/m³ and up

② Current detection levels in Bq/m³

③ Date (DD.MM.YY)

④ Time (24hr)

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Understanding your readings

Radon is a radioactive, colorless, odorless, tasteless noble gas, occurring naturally as the decay product of radium. It is one of the densest substances that remains a gas under normal conditions and is considered to be a health hazard due to its radioactivity.

According to a 2003 report EPA's Assessment of Risks from Radon in Homes from the United States Environmental Protection Agency, epidemiological evidence shows a clear link between lung cancer and high concentrations of radon, with 21,000 radon-induced U.S. lung cancer deaths per year—second only to cigarette smoking. Thus in geographic areas where radon is present in heightened concentrations, radon is considered a significant indoor air contaminant.

The becquerel (symbol Bq) is the SI-derived unit of radioactivity. One Bq is defined as the activity of a quantity of radioactive material in which one nucleus decays per second. The Bq unit is therefore equivalent to an inverse second, s^{-1}. 1 Bq = 1 s^{-1}

RADON CONCENTRATION GUIDELINES

The United States Environmental Protection Agency (EPA) recommends that all homes should be monitored for radon. EPA strongly recommends action for any dwelling with a concentration higher than 148 Bq/m3 (4 pCi/L), and encourages action starting at 74 Bq/m3 (2 pCi/L).

For levels of 20 picocuries radon per liter of air (800 Bq/m3) or higher, the home owner should consider some type of procedure to decrease indoor radon levels. For instance, since radon has a half-life of four days, opening the windows once a day can cut the mean radon concentration to one fourth of its level.

Typical domestic exposures are of ≈ 100 Bq/m3 indoors, but specifics of construction and ventilation strongly affect levels of accumulation; a further complications for risk assessment is that concentrations in a single location may differ by a factor of two over an hour, and concentrations can vary greatly even between two adjoining rooms in the same structure.