

# CANARY pro

## Digital Radon Monitor System

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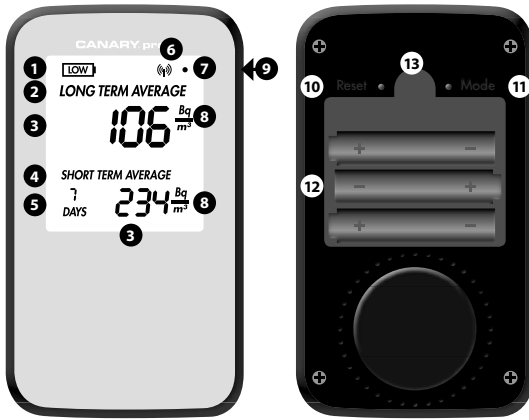
Designed and manufactured in Norway

Corentium AS, Oslo, Norway

v1.3

ENGLISH

### User manual



#### KEY TO FIGURE

- Indicator for low battery level. Replace batteries when lit.
- 'LONG TERM AVERAGE' measurement mode
- Measured value
- 'SHORT TERM AVERAGE' measurement mode
- Measurement period for short term average. Alternates between 1 and 7 days
- Indicator for USB connection to PC
- The unit is active when flashing
- Unit of measurement: Bq/m<sup>3</sup>
- USB connection
- 'RESET'. Used to start a new measurement period.
- 'MODE'. Displays the number of days measured since the previous reset.
- Battery compartment for 3 LR03, alkaline AAA batteries
- Opening the battery cover

#### SPECIFICATION

Sampling Method	Passive radon diffusion chamber
Detection Method	Alpha spectrometry
Power Supply	3 AAA alkaline battery (LR03) >18 months battery life-time
Power Consumption	275µW
Dimensions	120mm × 69mm × 25.5mm
Weight	130 grams (incl. batteries)
Operation Environment Temperature Relative Humidity	4 °C to +40 °C <85 %RH
Measurement Range Instrument Upper display limit	0 - 50.000 Bq/m <sup>3</sup> 9999 Bq/m <sup>3</sup>
Measurement uncertainty 7 days 1 month	<12% at 50 - 350 Bq/m <sup>3</sup> <8% at >350 Bq/m <sup>3</sup> <9% at 90 - 220 Bq/m <sup>3</sup> <6% at >220 Bq/m <sup>3</sup>
Diffusion time constant	25 minutes
Internal memory storage capacity	10 years at 1h time resolution
Temperature sensor Range Resolution Accuracy	4 °C to +40 °C 0.336 °C +/-0.5 °C (typical) , +/-1 °C (max)
Humidity sensor Range Resolution Accuracy	5 %RH to 85 %RH (non-condensing) 0.5 %RH +/-4.5 % (in range 20-80 %RH)
Barometric pressure sensor Range Resolution Accuracy	50.0 kPa to 115.0 kPa 0.06 kPa +/-1 kPa

#### SAFETY

Contact the seller if the product requires service or repairs. The front or back cover must not be opened.

Avoid subjecting the unit to shock, impact, pressure, vibrations, dust and moisture. Condensation can occur if the unit is moved from a location with high atmospheric humidity to a cold location. If condensation occurs, remove the batteries and leave the unit in a dry environment for 2 hours. The unit must not be exposed to direct sunlight for extended periods. The monitor must be stored under dry conditions.

Use only batteries of type LR3, alkaline AAA batteries. The batteries must not be exposed to fire or other extreme heat. The battery terminals must not be touched, and they must be kept free from dust, sand, liquids and other foreign objects.

#### LIFETIME

The monitor is tested and quality assured by producer. It meets the accuracy specified in the specification table, unless it continuously measure at high radon levels (many thousand Bq/m<sup>3</sup>) over years. It is recommended that the monitor is activated continuously, and that the batteries are not removed. Expected product lifetime is more than 10 years.

#### GETTING STARTED

- Insert the supplied batteries. Please observe correct polarity of your batteries and make sure you install them in the correct orientation as advised by the marking in the bottom of the battery compartment. After the batteries are installed in the instrument the display shows a 30 second boot sequence. Thereafter follows a self-calibration, data acquisition start and the monitor start the calculation of the radon level. In this phase the display shows from 4 to 1 flashing dashes indicating how long it is left to the instrument begins to show radon levels. Depending on the radon level this phase will take from 6 to 24 hours. The first few days the result must only be considered as an indication of the radon level. Accuracy increases with longer measurements.

- If the screen displays the error message 'Err' and a number: press the RESET button, remove the batteries and put them back in.

- Position the monitor in a location that is representative of the air that is breathed in this room.

- The unit should not be exposed to direct sunlight or electromagnetic radiation; it should be positioned lying flat at least 25 cm from the nearest wall, at least 50 cm above the floor, and at least 150 cm from the nearest door, window or ventilation device.

- To permit self-calibration, the unit should remain untouched for the first few minutes after start-up.

#### HOW TO USE THE CANARY PRO

- The long term average (LONG TERM AVERAGE) is the average radon value since last reset or average for last 12 months if one has measured more than 12 months (updated once every 24 hours).

- The short term average (SHORT TERM AVERAGE) alternates between showing the radon value over the last day (1 DAY – updated every hour), and over the last 7 days (7 DAYS – updated once every 24 hours. Appears after 1 week measurement).

The long term average is used to identify any potential health risk, and for continuously monitoring that any installed mitigation measures works properly. The short term average is used primarily to see the effect of measures to reduce the radon level – for example by increasing the ventilation.

The building can be diagnosed by taking measurements for one week. This should preferably be followed by long term measurement in the room which has the highest radon value. For long term measurement period and action level it is recommended to follow the guidelines from the national radiation authority.

The RESET button is used when the monitor is moved in order to start a new measurement period.

The MODE button is used to show the number of ongoing measurement days since the monitor was started for the first time, or since the RESET button was last pushed. This information is displayed on the lower half of the screen for 20 seconds, after which the screen reverts to the regular display.

Use a pen or similar to press the RESET and MODE.

When the monitor is connected to PC with the USB cable, display shows an indicator and the serial number of instrument (for example 5E- 64 15)

It is recommended that the monitor is activated continuously, and that the batteries are not removed. The battery lifetime is > 18 months.

To turn on / off anonymous display: Press 16 times the MODE button. Display shows '0 d E' and two values. Again press the MODE button until the left value shows 10. Allow 20 seconds after the new values are set. Now the display only shows the number of days measured. By pressing MODE once, the long term average is also shown. To restore ordinary display press 16 times the MODE button (display shows '0 d E' and two values). Again press the MODE button until the left value shows 2. Allow 20 seconds after the new values are set.

#### RESPONSIBILITY

The monitor and the batteries must not be disposed of as ordinary household waste. The materials used in Canary pro can be recycled. It is the user's environmental responsibility to ensure that electronic equipment and batteries are disposed of in accordance with national regulations. Users should contact the seller or their local authority for information about environmentally friendly waste disposal.

Canary pro has a 2-year warranty against system failure. In the event of incorrect use or operation of the monitor, Corentium AS cannot be held responsible for any losses resulting from failure or from the loss of measurement data.