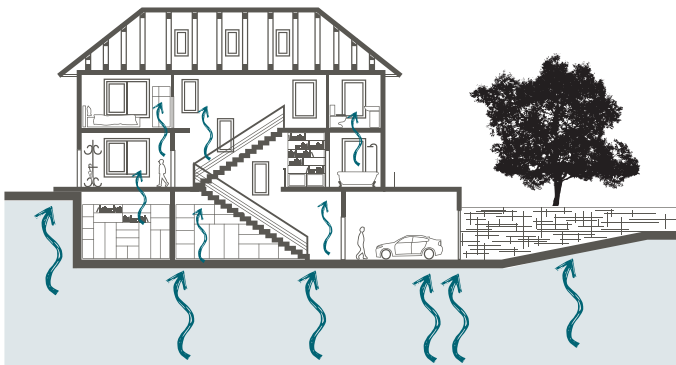


RADET-86

RADON DETECTOR FOR INDUSTRIAL INSTALLATIONS AND SINGLE-FAMILY HOUSES

Radon is an odorless, colorless, gas that is naturally-generated, principally through radioactive decay of the uranium present in soils and rocks, although occasionally it can also be present in construction materials (concrete, brick and natural stone) and in water from wells, emitting Alpha particles and decaying into Polonium and Lead.



The main pathways of entry of this gas into buildings is through cracks, joins, drains, downspouts, cavities around pipes, cables, or simply through the porosity of various materials used in the construction.

The highest concentrations are detected in basements, cellars, and especially the deeper an enclosure is with respect to ground level.

Its measurement unit in Europe is the Becquerel, (Bq/m^3) and in America is Picocuries (pCi/l).

Prolonged exposure to this gas increases the risk of suffering certain types of cancer, especially lung cancer, genetic defects or blood alterations. The WHO has included it on the list of group 1 carcinogens.



Safety guide **GS 11-02 of the CSN (Spanish Nuclear Safety Council)** recommends a reference level of $300 Bq/m^3$ as an annual average. Also, pending transposition of **European Directive 2013/59/ Euratom**, member states are invited to adopt this same reference value for workplaces and households.

The **WHO** recommends a reference maximum level of prolonged exposure of $100 Bq/m^3$ to minimise the risks to health.

This is not the permitted limit but rather a reference level that it is not advisable to exceed, bearing in mind that it is harmful for health based on the duration of exposure.

Radon has a half-life of 3 to 4 days and the best solution for making it disappear once detected is to adequately ventilate the enclosure, by opening windows and doors or by using mechanical extraction systems.

The following link provides a map of radon potential in Spain.

<https://www.csn.es/mapa-del-potencial-de-radon-en-espana>

DURAN ELECTRÓNICA has developed **RADET-86** which, using a pulse ionization chamber and a microprocessor with highly complex algorithms, is designed to detect Alfa particles generated by radon gas and to show the concentrations present in the atmosphere. It also comes with a memory that continuously stores the concentrations obtained by date and time for up to one year, for subsequent dumping and study.

RADET-86 is a detector that can operate automatically in two modes:

Mode 1: Compatible with DURGAS control panels, addressable, capable of measuring concentrations of this gas in real time, and to carry out the relevant manoeuvres from the control panel to ventilate the enclosure, able to activate 3 operating outputs with up to 3 different levels plus a local operation.

Mode 2: Autonomous, with a relay output for activation of an extractor at a preset level of 150 Bq/m³.

RADET-86, incorporates a Wifi connection, 2.4Mhz-Bluetooth, which allows for programming and obtaining measurement data and memory events using a built-in web gateway. It supports ModBus RTU mode.

It is supplied with a support that it is obligatory to use for correct functioning separated from the wall.

TECHNICAL CHARACTERISTICS:

Operating technology	Pulse ionization chamber and Microprocessor
Supply voltage	9-24V DC.
Maximum consumption	± 150 mA in autonomous mode relay ON 12DC
Types of communication/Distance	RS485 own protocol/ 1000 m. connection DURGAS panels ModBus RTU Autonomous mode
Wifi 2,4Mhz- Bluetooth	Autonomous mode
Measurement range / Precision	14-3700 Bq/m ³ ± 10 Bq/m ³
Optimum measurement stabilization time	Approx. 1 h.
Reading rate and data memory	Every 10 min. in Mode 1 and every 1 hour in autonomous mode 2.
Factory levels modes 1-2	150 Bq/m ³ local relay + optical warning 100 Bq/m ³ optical warning
Programmable levels in DURGAS control panel	Up to 3, in steps of 20Bq/m ³ up to 2,000 Bq/m ³
Levels programmed by default (factory settings)	100 Vent1-150 Vent2-200 Alarm Bq/m ³
Data storage	Up to 1 year
Data output and event memory	Built-in web gateway
Operating range	10°C-50°C / RH < 80%
External LED status indicator	RGB codes
Recommended minimum-maximum height	Minimum 1.5 m maximum 1.70 m from the ground
***Operating output Option 2.	Voltage free contact local relay C-NO 3A 230V AC
Operating output Option 1.	Up to 3 relays C-NO-NC. Programmable in control panel
*Approximate cover or reference.	50/75 m ² or country legislation
**Type of cable and input.	Shielded 4-wire hose 2 of 1.5 + 2 of 0.8 mm ² for braiding / by cable glands PG9
Weight and dimensions	± 400 gr cylinder of 90x110mm with support.

All specifications are measured at a temperature of 20°C and RH of 30-40%

*Coverage data is approximate as it can be influenced by several factors: type of enclosure, humidity, temperature, place of installation in relation to the radon source, etc.

**Supply cable sections and maximum distances vary depending on the quality of cable used, and sensor distribution across the total cable length.

**In the event of using the relay output, the hose must be 6-wire: 2 supply, 2 communications and 2 for operations.

*** the operation output in the event of functioning in mode (option 2 autonomous) is associated to the highest programmed radon level.