Smart Radon Sensor

Radon Monitor for integration in building automatization systems

SARAD's outstanding detector technology defines a new level of Radon monitoring in buildings and at workplaces as requested by the recently introduced EU radiation protection regulations.

The Smart Radon Sensor offers a very high sensitivity in a very small and shapely housing. Due to the detector technology, the instrument will not be affected by any variations of temperature and humidity, external radiation, mechanical shocks and vibrations. The measurement starts as soon as the power is connected. Various interfaces for system integration are available. The RS485 network interface can be operated either with the MODBUS RTU (industrial standard) or the proprietary SARAD protocol. The analogous output makes it easy to connect the Smart Radon Sensor to existing PLC's. A stand-alone ventilation control system can be easily realized by the alert switch output. If no data line is available, the optionally integrated ZigBee wireless interface can be used for connection to a host system. The wide range power input accepts all in building automation commonly used voltage supplies. For easy installation, all connections are available through a screw terminal. Two AAA batteries are integrated to continue the measurement in case of power interruptions. All measurement results will be stored locally in a non-volatile circular memory. Sensors for temperature and humidity are integrated as a standard. There are options for CO_2 and barometric pressure measurement. The Smart Radon Sensor comes with factory calibration and can be calibrated by any responsible accredited laboratory. We use only high quality and instrument grade components for this product which is manufactured in our company's location in Dresden/Germany.

SARAD®
Closer to your application

Technical data

Radon measurement		
Principle of operation	Lucas cell	
Range	1 Bq/m^3 … 1,000,000Bq/m³	
Accuracy	< 2%	
Sensitivity	> 2.5cpm/(kBq/m³)	
Stat. Error (1σ)	1 hour @ 300Bq/m³	15%
	1 day @ 300Bq/m³	3%
	1 day @ 50Bq/m³	8%

Humidity	
Range	0%rH … 100%rH
Accuracy	< 4.5%rH (3% typ.) for 20%rH … 80%rH

Temperature	
Range	-40°C … 120°C
Accuracy	< 0.4°C (0.3°C typ.) for 5°C … 60°C

Pressure (option)	Radon Scout Professional – P only
Range	760mbar … 1200mbar
Accuracy	< 0.5% FSO

CO2 (option)	Radon Scout Professional - CO2 only
Principle of operation	Non dispersive infrared (NDIR)
Range	400ppm … 5000ppm (0% to 0.5%)
Accuracy	< 5% ± 50ppm
Response time	10min
Remark	Automatic calibration with respect to outdoor CO2 level

Instrument

Environmental conditions	-10°C … 50°C 0%rH … 99%rH no condensation
Power supply	12 to 24 VDC 2 x AAA battery for power backup
Data storage	Non-volatile memory with circular structure for 16383 data records in any number of test series Saves all parameters including temperature and humidity each interval (settable from 1 to 255 minutes)
Interface	RS485 (MODBUS RTU and SARAD protocol) ZigBee wireless (SARAD Net Monitors) - optional 0…20mA analogous output (range configurable) Alert switch (potential free contacts) All interfaces with screw terminals
Alert indication	Red, yellow and green LED indicators for alert and state of operation
Operation	Automatic start after powering up
Software	Radon Vision
Dimensions	82mm x 96mm x 44mm
Weight	150g including batteries
Accessory	Bracket for wall mounting Factory calibration with certificate DKD calibration with certificate (option)