

# RADIATION MONITORS

## **M**odel CRM-1, **Continuous Active Radon Monitor**

The CRM-1 is a micro-processor controlled stand-alone Radon Measurement System ideally suited to providing a solution for applications requiring unattended Continuous Active Monitoring and Measurement of industrial process and exhaust gases containing Radon. This laboratory grade instrument allows for fast accurate measurements of radon levels in harsh conditions where a portable instrument would be unsuitable. The Instrument features a detachable control module and detector that allows for ease of maintenance and calibration.

This system is highly sensitive and reliable. The unit is housed in a lockable stainless steel enclosure allowing the unit to be situated in severe environments.

The CRM-1A is a CRM-1 that has been modified and tested for CE Mark compliance.



Model CRM-1

- User programmable measurement interval
- User programmable alarm
- Remote alarm contact provided
- Manual alarm test and muting
- RS232 port/PC software
- Calibration parameters stored in non-volatile memory
- Rotary vane pump
- Internally rechargeable battery maintains basic operation during a power interruption
- Optional Spare control module

### **Applications:**

- Waste Site Monitoring
- Stack Emission Monitoring
- Radioactive Site Clean-up
- Autonomous Continuous Monitoring
- Process Monitoring
- Mining/Ore Processing
- Custom Applications

### **Features:**

- 16 bit micro-controller
- Lockable weather resistant enclosure
- High sensitivity
- Additional Lithium battery supports memory during a power interruption
- Back-lit alphanumeric display for easy viewing
- Displays activities in Pico-Curies per liter or Becquerels per meter cubed

### **Theory of Operation:**

The radon detector is comprised of a Lucas type cell. The gas is drawn from a remote location by a rotary vane pump into the Lucas type cell. The flow is then diverted through a filter to remove the radon daughters before entering the Lucas type cell and returned to the exhaust vent. As the radon decays it emits an alpha particle that strikes the silver activated zinc sulfide coating of the cell. The energy of the alpha particle is converted to a light pulse by the phosphor. The light pulse is amplified by the PMT and counted by the CRM-1 over the User programmable measurement interval.

CRM-1 / CRM-1A

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### Specifications:

#### GENERAL

Mode of Operation: Continuous.  
Sample & Count Periods: User Programmable.  
Maximum Counting Rate: 15,000 cps  
Electronic Background: < 0.4 cpm

#### DETECTOR

Detector: Pylon Model 200A Lucas Type Active Cell.  
Detection Specifications: Please refer to the Active Cell brochure.

#### POWER

Power Supply Requirements: 120 / 240 VAC, 50 / 60 Hz, 3 A  
Battery Type(s): 1) Integrated 6V gel cell.  
2) Integrated Lithium battery for RTC circuit.  
Battery Operating Time: 72 Hrs (Pump off.)  
Battery Charge Time: 16 Hrs

#### FEATURES

Display: 20 Character by 4 Line Backlit Graphic Liquid Crystal Display.  
Memory: 2048 data points (85 days at 60 min intervals).  
Data Port: 1) RS-232 via 9 pin D-Sub Connector.  
2) 5V TTL Negative Going Pulse via BNC Connector.  
3) RS-485 via 9 pin D-Sub Connector (Optional. Replaces RS-232 Signals.)  
4) 4 - 20 mA via Mil Style Connector (Optional).  
Low Battery Indicator: Displays "Low Battery".

#### PUMP

Pump Flow Rate: 50 to 500 ccm - Through the Detector Cell.  
Filter type: 1um, 47mm Cole Parmer H-06646-12 or equivalent.

#### ALARMS

Alarm Level: Programmable.  
External Alarm Output: Isolated contact, 1A nominal @ 24V.

#### ENVIRONMENTAL

Operating Temperature Range: 0 to +50 (-32 to +122) °C (°F)  
Storage Temperature Range: -20 to +60 (-4 to +140) °C (°F)  
Relative Humidity Range: 0 to 90 % - Non-Condensing.

#### DIMENSIONS

Length: 22.2 (8.75) cm (in.)  
Width: 40.6 (16) cm (in.)  
Height: 57.2 (22.5) cm (in.)  
Weight: 18 (40) kg (lb.)

• Values are nominal.

### Ordering Information:

Model CRM-1 Order part number 6243300.

Model CRM-1A Order part number 6244000.

**Factory Installed Options** (Other options are available. Please contact Pylon):

Heater Order part number 6243650.

Current Loop Port Order part number 6243360.

Specifications subject to change without notice. Not all options have been tested for CE Mark compliance. Please contact Pylon.

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