

# RADIATION MONITORS

## **M**odel AB-4 and AB-4A Portable Radon Monitors

The AB-4 and AB-4A are sophisticated measurement systems that measure radon concentrations with a PMT and Lucas type cell. The systems are highly sensitive and reliable. These instruments allow for fast accurate measurements of environmental radon levels in the lab and in the field. These instruments differ only in that the AB-4A is equipped with an internal printer and a sensor package that measures barometric pressure, relative humidity and temperature.

### **Applications:**

- Waste Site Monitoring
- Compliance Testing
- Environmental Audits
- Diagnostics
- Mining Studies
- Continuous Monitoring
- Home Testing
- Other Custom Applications

### **Features:**

- Portable
- Tamper monitoring
- High sensitivity
- Additional Lithium battery supports memory during a power interruption
- Back-lit alphanumeric display for easy viewing
- User Programmable alarm
- Internal audible alarm
- Remote alarm contact provided
- RS232 port (For data output or external printer). Internal printer (AB-4A)
- PC software & scintillation cell included
- Security user modes
- Full operator access in Primary mode
- Data and count display is inhibited in



Model AB-4A

- Secondary mode
- Pulse output for external data-loggers
- Simultaneous measurements of ambient temperature, humidity and pressure for environmental conditions with optional sensor module (AB-4A)
- Calibration parameters stored in non-volatile memory
- Optional internal printer
- Automated plateau generation

### **Theory of Operation:**

The radon detector is comprised of a Lucas type cell. Radon enters the Lucas type cell. The gas to be sampled naturally diffuses through a radon permeable membrane into the cell.

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 AB-4 over the User programmed measurement interval.

AB-4 / AB-4A

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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 CPC Lucas Type Passive Cell.  
 Detection Specifications: Please refer to the Passive Cell brochure.

#### POWER

Power Supply Requirements: 12 Vdc  $\pm$  20%, 0.5 A - 110/220 VAC Adapter/Charger Included.  
 Battery Type(s): 2 x Integrated 6V gel cells.  
 Battery Operating Time: 72 Hrs  
 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.  
 Low Battery Indicator: Displays "Low Battery".

#### ALARMS

Alarm Level: Programmable.  
 External Alarm Output: Isolated contact, 1A nominal @ 24V.  
 Integrated Audible Alarm: Piezo-ceramic (72 dB).

#### ENVIRONMENTAL SENSORS (OPTIONAL SENSOR MODULE)

Temperature Sensor Tolerance:  $\pm$  1 °C  
 Relative Humidity Sensor Tolerance:  $\pm$  5 %  
 Barometric Pressure Sensor Tolerance:  $\pm$  1 kPa

#### 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: 29.2 (11.5) cm (in.)  
 Width: 26.7 (10.5) cm (in.)  
 Height: 17.8 (7) cm (in.)  
 Weight: 5.5 (12) kg (lb.)

- Values are nominal.
- Specifications are based on new units which have been appropriately calibrated.

### Ordering Information:

Model AB-4: Order part number 6209700.  
 Model AB-4A: Order part number 6209707.

Specifications subject to change without notice.  
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