

# DETECTION UNITS

## ***Model CPRD, CPC and 200P are passive Lucas type cells***

These Lucas type cells provide a convenient means for the continuous detection and measurement of radon gas.

Pylon's continuous Passive Radon Detectors can reliably detect radon levels as low as 0.67 pCi/l (24.8 Bq/m<sup>3</sup>) These cells are recommended for long-term surveys and continuous monitoring.

Pylon Lucas Type Cells are manufactured with a high efficiency scintillator of silver activated zinc sulphide to exacting tolerances. The scintillator responds to alpha radiation from radon decay but is insensitive to beta and gamma. For this reason it is possible to achieve the low background essential for measuring low radon concentrations.

The special high efficiency ZnS(Ag) coating in the passive Lucas type cells results in a highly responsive detector that is insensitive to changes in temperature, dust, or humidity and which remains stable over long periods of time.

High sensitivity and efficiency are obtainable with these passive cells. These cells give a counting efficiency up to 20 percent higher than other available products resulting in improved instrument performance.

### **Applications:**

When combined with a Pylon radiation monitor these passive cells can be used for:

- Residential Monitoring
- Industrial Monitoring
- Ventilation Studies
- Waste Site Monitoring
- Radioactive Site Clean-up
- Mining/Ore Processing
- Perimeter Monitoring
- Building Research
- Health Protection



**200P**

**CPC**

### **Features:**

- Continuous use
- Simple operation
- High sensitivity / efficiency
- Insensitive to humidity, temperature and dust
- Immune to beta gamma radiation
- Suitable for continuous radon measurements

### **Theory of Operation:**

Radon gas present in the environment continually diffuses through a permeable polyurethane foam membrane into the active volume of the passive cell. This membrane discriminates against radon daughters and other radioactive particulates. Thirty minutes after the start of exposure, the radon gas in the cell is equivalent to the radon level in the environment. In approximately 3.5 hours the sample reaches equilibrium with its daughters. Measurements are normally made in the equilibrium state.



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## Specifications:

	<u>CPRD</u>	<u>CPC</u>	<u>200P</u>	
Radiation Detected:	Alpha	Alpha	Alpha	
Scintillator:	ZnS(Ag)	ZnS(Ag)	ZnS(Ag)	
Alpha Energy Ranges:	4.5 to 9	4.5 to 9	4.5 to 9	MeV
LAD <sup>1</sup> :	0.67 (24.8)	0.8 (29.6)	1.18 (43.7)	pCi/l (Bq/m <sup>3</sup> )
Sensitivity:	1.5 (0.041)	1.25 (0.034)	0.85 (0.023)	cpm/pCi/l (cpm/Bq/m <sup>3</sup> )
Accuracy <sup>2</sup> :	± 4	± 4	± 4	%
Active Volume:	272 (9.2)	220 (7.4)	162 (5.5)	ml (oz (US Liq))
Detector Background:	< 1.0	< 1.0	< 1.0	cpm
Calibration <sup>3</sup> :	Single Point	Single Point	Single Point	
Primary Construction Material:	Aluminum	Aluminum	Aluminum	
Operating Temperature Range:	0 to +50 (+32 to +122)	0 to +50 (+32 to +122)	0 to +50 (+32 to +122)	°C (°F)
Storage Temperature Range:	-20 to +75 (-4 to +167)	-20 to +75 (-4 to +167)	-20 to +75 (-4 to +167)	°C (°F)
Relative Humidity Range <sup>4</sup> :	0 to 90	0 to 90	0 to 90	%
Diameter:	6 (2.4)	6 (2.4)	6 (2.4)	cm (in.)
Height:	15 (5.9)	15 (5.9)	13.3 (5.2)	cm (in.)
Weight:	140 (0.31)	190 (0.42)	262 (0.58)	g (lb.)

## Notes:

<sup>1</sup> Lowest Activity Detectable.

<sup>2</sup> At a 1 $\sigma$  confidence level.

<sup>3</sup> Custom calibrations including multi-point calibrations and calibrations at non standard activity levels are available. Call for details.

<sup>4</sup> Non-condensing.

• Values are nominal.

• Specifications are based on new units which have been appropriately calibrated.

• Custom low efficiency cells that are used to measure higher radon concentrations are available. Call for details.

## Ordering Information:

<i>Model</i>	<i>Part Number</i>	<i>Description</i>
CPRD	A201733	Passive Radon Detector for AB-5 series
CPC	6209720	Passive Radon Detector for AB-4 series
200P	6243350	Passive Radon Detector for CRM-2

Specifications subject to change without notice.

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