

# DETECTION UNITS

## **M**odel TEL – Trace Environmental Level Radon Detector

The TEL (Trace Environmental Level Detector) is designed to detect very low levels of radon. The TEL can detect radon gas concentrations as low as 0.025 pCi/l (0.93Bq/m<sup>3</sup>). The unit is designed for use with the Pylon model AB-5 monitor and external PMT.

### Applications:

- Outdoor radon measurements
- Meteorological studies
- Trace level radon analysis
- Radon in breath
- Health protection
- Building research

### Features:

- Detector is portable and light
- Extreme sensitivity and versatility
- Allows for a number of applications, including measuring household levels of radon gas



TEL

### Theory of Operation:

The TEL detector consists of a 17.5 electrostatic chamber which acts as a Lucas type cell. Specifically, in low humidity conditions, the aluminized Mylar conductor surrounding a light pipe serves as the collector or "cathode" attracting the radon daughters. As the radon daughters decay, they give off alpha particles which strike the scintillation material around the light pipe to produce photons of light. The light pipe channels the generated photons to the attached external PMT which converts the photons to electrical pulses which are amplified and counted by the AB-5. By using "static electricity" to attract the radon daughters, sensitivity is increased. The TEL can collect samples in both active continuous sampling and grab sampling modes.

MODEL TEL

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## Specifications:

Radiation Detected:	Alpha
Scintillator:	ZnS(Ag)
Energy Ranges:	4.5 to 9 MeV
LAD <sup>1</sup> :	0.025 (0.93) pCi/l (Bq/m <sup>3</sup> )
Sensitivity:	23 (0.62) cpm/pCi/l (cpm/Bq/m <sup>3</sup> )
Accuracy <sup>2</sup> :	± 4% %
Active Volume:	18 (4.76) l (gal (US Liq))
Detector Background:	< 0.5 cpm
Calibration <sup>3</sup> :	Single Point
Connectors:	Quick Connect Fittings
Mating Connectors:	Swagelok B-QC4-S-4HC or Equivalent
Maximum Flow Rate:	10 (0.35) lpm (ft <sup>3</sup> /min)
Battery Types:	Quantity 1 x 9V <sup>4</sup> Quantity 4 x C Cell <sup>5</sup>
Battery Operating Time <sup>6</sup> :	1000 hrs
Power Supply Requirements <sup>7</sup> :	4.5 Vdc or 6 Vdc, 300 mA
Operating Temperature Range:	0 to +40 (+32 to +104) °C (°F)
Storage Temperature Range:	-20 to +75 (-4 to +167) °C (°F)
Relative Humidity Range <sup>8</sup> :	0 to 90 %
Diameter:	38 (15) cm (in)
Height:	48 (18.9) cm (in)
Weight:	8 (17.6) kg (lb)

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

<sup>2</sup> At a 1 $\sigma$  Confidence Level.

<sup>3</sup> Custom calibrations available. Custom calibrations include multi-point calibrations and calibrations at non standard activity levels.

<sup>4</sup> For display. Alkaline is recommended.

<sup>5</sup> For High Voltage circuit. Alkaline is recommended.

<sup>6</sup> High Voltage circuit.

<sup>7</sup> For High Voltage only, a 110 VAC or 220 VAC Adapter is included.

<sup>8</sup> Non-Condensing.

• Values are nominal.

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

## Ordering Information:

<i>Model</i>	<i>Part Number</i>	<i>Description</i>
TEL	6202059	Trace environmental level radon detector - 110V Adapter
TEL	6202060	Trace environmental level radon detector - 220V Adapter

The TEL require an external PMT Assembly which is sold separately.

Specifications subject to change without notice.

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