

DETECTION UNITS

Model TEL1 – Trace Environmental Level Radon Detector

The TEL1 (Trace Environmental Level Detector) is designed to detect very low levels of radon. The TEL1 can detect radon gas concentrations as low as 0.93 Bq/m^3 (0.025 pCi/l). The unit is designed for use with the Pylon model AB-5 series of monitors 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



TEL1

Theory of Operation:

The TEL1 detector consists of an 18 litre (nominal) 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 TEL1 can collect samples in both active continuous sampling and grab sampling modes.



DETECTION UNITS

Specifications:

Radiation Detected:	Alpha
Scintillator:	ZnS(Ag)
Energy Range:	4.5 MeV to 9 MeV
LAD ¹ :	0.93 Bq/m ³ (0.025 pCi/l)
Sensitivity:	0.62 cpm/Bq/m ³ (23 cpm/pCi/l)
Accuracy ² :	± 4%
Active Volume:	18 l (4.76 gal (US Liq))
Calibration ³ :	Single Point
Connectors:	Quick Connect Fittings
Mating Connectors:	Swagelok B-QC4-S-4HC or Equivalent
Maximum Flow Rate:	10 l/min (0.35 ft ³ /min)
Battery Type:	Quantity 6 x AA NiMH ⁴
Battery Operating Time:	40 hrs.
Power Supply Requirements:	7.2 V NiMH Battery Charger (Included)
Operating Temperature Range:	0 °C to +40 °C (+32 °F to +104 °F)
Storage Temperature Range:	-20 °C to +75 °C (-4 °F to +167 °F)
Relative Humidity Range ⁵ :	0 % to 90 %
Diameter:	35 cm (13.5 in)
Height:	39 cm (15.5 in)
Weight:	8 kg (17.6 lb.)

¹ Lowest Activity Detectable.

² At a 1 σ Confidence Level.

³ Custom calibrations available. Custom calibrations include multi-point calibrations and calibrations at non standard activity levels.

⁴ The batteries are rechargeable and only need to be replaced when they will not hold a charge.

⁵ Non-Condensing.

Ordering Information:

Model TEL1: Order part number 6249000.

The TEL require an external PMT Assembly (Part Number A201680) which is sold separately.

Values are nominal and based on new units.
Specifications subject to change without notice.
Trademarks are the properties of their respective holders. All Rights Reserved.

Datasheet: 111A Rev 2