Model WLx Portable Working Level Radiation Monitor

The WLx is a sophisticated measurement system that features a state of the art solid state detector and employs sophisticated algorithms to determine the potential alpha energy concentration (primarily from radon and thoron progeny) in a given volume of air. The WLx is a laboratory grade, portable instrument. The error analysis capability is unique in a field instrument of this type. The servo controlled pump makes it well suited to unattended area level monitoring for extended periods in adverse environments.

Applications:
- Simultaneous Radon and Thoron Progeny Measurement
- Radiological Protection of Personnel
- Area Monitor (Alarm Output)
- Health Physics Studies
- Building Monitoring
- Equilibrium Ratio Measurements

Features:
- Solid state detector 25mm dia.
- Graphic display and printer
- Servo controlled pump
- RS232 port/PC software
- Barometric pressure and temperature sensors
- Volumetric air sampling
- Internal audible alarm, remote alarm contact provided
- Tamper resistant housing, portable
- Pre-programmed and User programmable measurement methods
- Simultaneous radon and thoron daughter sampling/measurement
- Reports radon and thoron WL with error approximation
- Live measurement as opposed to tail count technique
- Capability for equilibrium measurement

Theory of Operation:
A working level system measures the potential alpha energy in a given volume of air. This is accomplished by sampling a known air volume by the servo controlled pump through a filter. The radon and thoron progeny in the air sample are collected on a filter that faces a laboratory grade Ion implanted solid state detector. As the radon and thoron progeny decay, alpha particles are released. An alpha particle that strikes the detector releases a quantity of electrons across the semiconductor diode junction. The quantity of electrons released is proportional to the energy of the alpha particle. A multichannel analyzer discriminates the radon and thoron progeny. Sophisticated algorithms determine the working level.
### Specifications:

**GENERAL**
- **Mode of Operation:** Multiple.
- **Sample & Count Periods** User Programmable.
- **Electronic Background:** < 0.1 cpm

**DETECTOR**
- **Detector:** "Instrument quality" 25 mm dia. solid state.
- **Detection Range:** 0.001 to 50 WL
- **Minimum Detectable Level:** 0.001 WL - One hour continuous sample.

**POWER**
- **Power Supply Requirements:** 12 Vdc ± 20%, 0.5 A - 110/220 VAC Adapter/Charger Included.
- **Battery Type(s):** 6 "D cells" : Alkaline, Ni-CAD, or NiMH. - Temporary Operation and Memory Backup.
- **Battery Operating Time:** 48 to 120 Hrs - Depending on mode of operation.
- **Battery Charge Time:** 16 Hrs - Ni-CAD or NiMH Batteries Only. Charge circuit must be enabled.

**FEATURES**
- **Display:** 80 Character by 4 Line Backlit Graphic Liquid Crystal Display.
- **Memory:** 30 Days at 1 hour intervals - For Continuous Method Only.
- **Data Port:** RS-232 via 9 pin D-Sub Connector.

**PUMP**
- **Pump Flow Rate:** 300 to 2000 sccm
- **Pump Flow Rate Tolerance:** ±5 sccm
- **Filter type:** 0.8um, 25mm Millipore AAWP02500 or equivalent.

**ALARMS**
- **Alarm Level:** Programmable.
- **External Alarm Output:** Isolated contact, 2A nominal @ 24V.
- **Integrated Audible Alarm:** Piezo-ceramic (70 – 85 dB).

**ENVIRONMENTAL SENSORS**
- **Temperature Sensor Tolerance:** ± 1 °C
- **Barometric Pressure Sensor Tolerance:** ± 1 kPa.

**ENVIRONMENTAL**
- **Operating Temperature Range:** 0 to +50 (-32 to +122) °C (°F)
- **Storage Temperature Range:** -20 to +70 (-4 to + 158) °C (°F)
- **Relative Humidity Range:** 0 to 90 % - Non-Condensing.

**DIMENSIONS**
- **Length:** 25.4 (10) cm (in.)
- **Width:** 45.1 (17.75) cm (in.)
- **Height:** 22.9 (9) cm (in.)
- **Weight:** 6 (13.2) kg (lb.) - With Batteries.

- Values are nominal.
- Specifications are based on new units which have been appropriately calibrated.
- Specify charging circuit requirement at time of order.

### Ordering Information:

- **Model WLx:** Order part number 6204610.
- **Optional Thoron Calibration:** Order part number 9000125.

Specifications subject to change without notice.
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