

Portable Tritium- In-Air Monitor Model 309A

The Model 309A Portable Tritium-In-Air monitor adds a new dimension to the versatility of monitoring instrumentation for the Nuclear Industry. The only true dual purpose instrument in the industry, Model 309A enables you to use the monitor as both a continuous remote areamonitor and as a hand-held unit ensuring absolute flexibility.

Introducing this monitor in the ensemble of standard portable devices for health physics applications adds strength to the overall capability for tritium monitoring. Through its microprocessor intelligence and automatic range switching, the 309A permits tritium measurements in the range $1\mu\text{Ci}/\text{m}^3$ to 200,000 $\mu\text{Ci}/\text{m}^3$. Additional built-in features include concentration displayed in any one of four preselectable units, analog output (lin and log), remote monitoring capability via an RS-232 port, pre-settable alarm levels and external power supply operation.

The state-of-the-art electrometer coupled to co-axial ion chambers affords efficient gamma cancellation. This inexpensive, lightweight, Tritium-In-Air monitor is also environmentally sealed and serves to fulfill a distinct need in the general area of dose-control, assessment of tritium contamination and detection of tritium leaks.



The Model 309A is used world-wide both in health physics applications and in heavy water reactor complexes.

Features

Rugged, Portable Design

Model 309A weighs less than 4kg, ensuring full portability, and is environmentally sealed.

Dual Purpose Monitor

The 309A serves as both a continuous remote areamonitor and as a hand-held unit giving you the utmost flexibility.

Wide Operating Range

A wide operating range of 0 to 200,000 $\mu\text{Ci}/\text{m}^3$ with automatic range switching makes the 309A very versatile and easy to use.

Meets Military Specifications

All of our Tritium monitors are manufactured to AQAP-4 and ISO 9001.

Four Operator Selected Ranges

The four selectable ranges enable you to view the reading in any of these forms:

? 1-200,000 $\mu\text{Ci}/\text{m}^3$

? 0.1-20,000 MPC_a (10 $\mu\text{Ci} = \text{MPC}_a$)

? 0.037-7400 MBq/ m^3 (1 MBq-27 $1\mu\text{Ci}/\text{m}^3$)

Intelligent Microprocessor

The 309A's microprocessor technology ensures maximum flexibility.

Automatic Compensation

The 309A automatically compensates for zero drift ensuring data integrity.

Co-Axial Dual-Ion Chamber

The co-axial dual-ion chamber permits efficient Gamma Compensation.

Specifications

Detector

250cc Nominal Co-axial Ion-Chambers.

Range

1 to 200,000 $\mu\text{Ci}/\text{m}^3$.

Time Constant

<1 minute to display >90% of final reading.

Gamma Compensation

For Cs-137 Gammas perpendicular to chamber axis <+3 $\mu\text{Ci}/\text{m}^3/\text{mR}/\text{h}$ to maximum of 10 mR/h gamma dose rate.

Display

16-Character LCD, Backlit.

Accuracy

$\pm 30\%$ (1 sigma) or 1 digit whichever is greater for tritium concentration <20 $\mu\text{Ci}/\text{m}^3$.

Operating Temperature

+5°C to +50°C.

Temperature Drift

Zero: <0.15 $\mu\text{Ci}/\text{m}^3/^\circ\text{C}$

Noise: (No radioactivity): <3 $\mu\text{Ci}/\text{m}^3/\text{C}$.

Operating Humidity

To 95% R.H. (Non-condensing).

High Position Alarm

Audio-internally pre-settable at any one of three levels in all system of measurement units.

Flow Alarm

Indication of LCD with intermittent audio.

Power Supply

4.5 V DC (three D type alkaline cells) of External 110/220 AC from power supply. Battery Life = 6 hours at room temperature, without pump on, 25 hrs.

Functional Features

A. Function Switch (4 position)

1. Instrument OFF: In this position the electrometer is under power from main battery source and the bias voltage is supplied by two 45V batteries Eveready 415 or equivalent.

2. DISPLAY ON: This position is used for zero adjustment.

3. PUMP ON: Pump and Display ON: On this position a low battery condition is also indicated.

4. BATT./ALARM CHECK: Pump, Display and Audio Alarm activated. Display reads battery voltage.

B. Zero Set Push-Button: When pushed and released, permits Zero Control Potentiometer to set zero on display.

C. Zero Adjust Potentiometer: Permits setting of zero on display while in Zero mode. Multi-turn lockable potentiometer.

D. Zero Drift: Automatic Compensation.

Air Sampling System

Connection: Male hose adapter for 5mm I.D. silicon tubing

Sample Rate: Approx. 1.5 litre/min

Filtration: Replaceable 25mm diameter glass-fibre filter disk

Construction

All metal case and front panel construction; suspended type configuration; all entry points gasketed or O-ring sealed. Instrument box is painted with hardwearing two-component urethane. Detachable Sound Alarm resonator for easy decontamination.



309A in wall mount bracket in networked mode

Size

Width: 15.24cm (6.0")

Length: 22.86cm (9.0")

Depth: 17.53cm (6.9")

Weight: 3.9kg (8.6lbs)

Standard Accessories

1. External Power Supply
120V - P.N. 935060
220V - P.N. 935061
2. Spare filters
P.N. 008987
3. RS-232 Cable
P.N. 935063
4. Analog Cable
P.N. 935064

Optional Accessories

1. Rugged Aluminum Carrying Case
P.N. 935024
2. Carrying Strap
P.N. 140200
3. Wallmount Adaptor
4. 8 Channel Multiple serial Port Adaptor
5. Trinet Software
6. Gas output port adapter
P.N. 9351

