

Ultra Low-level Automated Tritium Air and Stack Monitor

Model – Trimaran-Air

Description

Fully Intergrated Package

Model Trimaran-AIR is a completely self-contained instrument for near real time continuous detection of Tritium concentration in water. The instrument is mounted inside a rugged built 200 cm tall steel enclosure with reinforced anchoring feet and locked access.

P-10 gas (90% Argon, 10% Methane, non-combustible) cylinder is connected to the unit externally. This quantity is sufficient for 60 days of continuous operation.

The main subassemblies are:

1. Sample air input lines
2. **Optional:** Multi-line intake manifold
3. Pre-filter
4. **Optional:** External cooling loop in case of hot samples
5. Sample pump
6. Sample Enrichment assembly
7. Detection module
8. Data acquisition electronics module
9. System control module
10. Output line

Remote Monitoring and Alarming:

- USB, Ethernet and **Optional** 4-20mA output.
- 2 alarm outputs and malfunction outputs in the form of dry, fail-safe, relay contacts.
- Alarms are user adjustable.
- Malfunction alarms activate in case of electronics and/or mechanical failures in the system.

Advantages of Proportional Counting System

The Trimaran AIR utilizes proportional counting technology. A compact standard steel tank of proportional gas will last for two months and is readily available from a variety of suppliers.

The P-10 counting gas is 90% Argon and 10% Methane, is not toxic or combustible.

Measurement with this method achieves better low-end Tritium sensitivity than other methods.

The **Trimaran AIR** offers an **Optional** 6 port intake manifold for sampling 6 individual input lines, sampled in series and is programmable.

Need for Sample Enrichment

With proportional counting detectors, Technical Associates / Overhoff Technology has pushed Tritium detection to the most sensitive limit.

However, air/vapor samples may be diluted and even with large proportional detectors there are not enough Bq disintegrations per second for good measurements. This issue is overcome by concentrating or enriching the sample using iterative process to concentrate the Tritium from the Hydrogen vapor

Technical Associates / Overhoff Technology scientists have developed their own proprietary sample enrichment cycle, creating system sensitivities far beyond other automated flow-through systems




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