

# Automated Flow Thru Tritium Water Monitor

**Model: TRIMARAN – H<sub>2</sub>O and TRIMARAN – H<sub>2</sub>O-ES**

## Description: Fully Integrated Package

Model Trimaran-H<sub>2</sub>O is a completely self-contained instrument for 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 water input lines
2. Pre-filter
3. External cooling loop in case of hot samples
4. PRV and RV system with manifolds
5. Water purification system (oil-in-water and micron filter)
6. Sample water pump
7. Detection module
8. Data acquisition electronics module
9. System control module
10. Waste water output line, RV output line and sample bypass output lines
11. Sample Enrichment assembly

## Pressure Regulating Equipment

Pressure of input sample streams can be up to 103 kPa. The pressure is immediately reduced to 2-3psi via Pressure Regulating Valves (PRV).

Each PRV is associated with Pressure Relieve Valve set to open at 100 kPa, preventing the pressure in the system from being more than 100 kPa, in turn making it safe to handle.

This also makes the instrument Class 6 Nuclear Device.

## Low Minimum Detectable Activity (MDA):

- The Trimaran H<sub>2</sub>O detects Tritium decay extracting T<sub>2</sub> and H<sub>2</sub> from water, enriching/concentrating the sample.
  - Sensitive measurement is made with matched gas flow proportional counters.
  - 1/8" lead or equivalent shielding minimizes cosmic and Gamma radiation effects providing low back- ground noise.
- Optional** 1/2" lead or equivalent shielding.

## 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.



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