LOW LEVEL TRITIUM IN AIR MONITOR
REAL TIME CONTINUOUS

Model ~ Tritium-AIR

FEATURES:
- LOW LEVEL TRITIUM
- REAL TIME – AUTOMATIC
- EXCELLENT LONG TERM STABILITY
- CONTINUOUS MONITORING
- DATA ARCHIVE FOR UP TO FIVE YEARS
- DATA RETRIEVAL
- ALARMS – AUDIO / VISUAL User Settable
- USB PORTS
- NOT INFLUENCED BY OTHER NUCLIDES
- EASY CALIBRATION
- NEW STATISTICAL SIGNIFICANCE DISPLAY
- RUGGED
- TABLE TOP OR
- OPTIONAL: CART or RACK MOUNTED
- IP42

APPLICATION:
Airborne Tritium is a hazard wherever Tritium occurs:
- Nuclear Power Plants
- Fusion Research
- Pharmaceutical Labs
- Weapons Maintenance
- Nuclear Navy Ships & Shipyards

DESCRIPTION:
This system consists of an efficient condenser that pulls Tritiated water vapor from the air and a light tight detector assembly which is interfaced with the sample via male 1/8’ pipe fittings with the readout and processor assembly via two BNC connectors.

The sample is passed through a filter and thence to the detector assembly, where it is viewed by two pairs of matched photo multiplier tubes.

The table top or free standing processor and display portion of this system conditions and analyzes the output from the photo multiplier tubes by pulse height and validated by a coincidence circuit, thereby permitting the system to eliminate counting most background (noise) counts.

Tritium-Air includes unique statistical Significance Display.
- This function rates strength of the data preventing most false positives or negatives:
  - Significance : HIGH, LOW, or NOT SIGNIFICANT.

TECHNICAL ASSOCIATES
OVERHOFF TECHNOLOGY
7051 Eton Ave., Canoga Park, CA 91303
818-883-7043 (Phone) 818-883-6103 (Fax)
tagold@nwc.net WWW.TECH-ASSOCIATES.COM
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UNIQUE TRITIUM-AIR DETECTOR CHARACTERISTICS

<table>
<thead>
<tr>
<th>FEATURE</th>
<th>PURPOSE</th>
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<tbody>
<tr>
<td><strong>Ultra High Sensitivity Achieved Through the Following Physical Features:</strong></td>
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<tr>
<td>Custom Made Anthracene Scintillation Crystals in Technical Associates’ Laboratories</td>
<td>High Beta Sensitivity</td>
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<tr>
<td>Two (2) 5” Diameter Optical Sensor Arrays (Totaling 200 cm²) Sensitive Area</td>
<td>High Count Rate</td>
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<tr>
<td>Special Data Analysis</td>
<td>As Described in Sensitivity Chart</td>
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<tr>
<td>Guard Detector</td>
<td>Cosmic Ray Rejection</td>
</tr>
<tr>
<td>Four (4) Photo Sensors</td>
<td>True Tritium Pulse Validation</td>
</tr>
<tr>
<td>Five (5) Flow Channels</td>
<td>Assures Smooth Continuous Flow</td>
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<tr>
<td>Temperature Controlled Detector Cooler</td>
<td>Long Term Accurate Signal Stability</td>
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<tr>
<td><strong>OPTIONAL:</strong> Steel, Bronze, and Lead Shielding</td>
<td>Gamma Ray Background Rejection</td>
</tr>
<tr>
<td>Real-Time Temperature Compensation Sensor</td>
<td>Improved Sensitivity &amp; Stability</td>
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TRITIUM-AIR FLOW CHART
1. Efficient Condenser Unit Includes Air Pump:
   Extract Tritiated Water from the Air
2. Chiller
3. Refrigerated Detector & Amplifiers to Sustain
   Constant Low Temperature
4. Flow Cell – 5” Diameter
5. Photo Multiplier Tube
6. OPTIONAL: Guard Detector

FEATURES OF SENSOR SYSTEM
• Real-Time Temperature Detection & Correction
• Real-Time Dynamic Gamma Background Detector.
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SPECIFICATIONS:

**ELECTRONICS:**

- Controls: Plug In Modules Provide Diversity in Function & Expansion
- On / Off Switch
- Alarm Reset Switch
- **Dials:** Energy Threshold; High Voltage
- (4) USB Ports

**Display Update:**

- Easy to read color LCD readout.
- 7” Display Window
- Updates Every 2 minutes or User Settable.

**Ranges:**

- $1 \times 10^{-4}$ to 1.0 uCi/l ($3.7 \text{ KBq/m}^3$ to $37 \times 10^7 \text{ Bq/m}^3$)
- **OPTIONAL:** Other ranges higher or lower.

**Alarm:**

- Audio / Visual – User Settable

**Power:**

- AC 115V **OPTIONAL:** 220 V

**Ambient Temperature:**

- Detector - $< 80^\circ \text{F}$ (**Optional** - to $115^\circ \text{F}$)
- Readout $< 115^\circ \text{F}$

**WEIGHT & DIMENSIONS:**

<table>
<thead>
<tr>
<th>Dimensions</th>
<th>Electronics:</th>
<th>23”H x 16”L x 21” W</th>
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<tbody>
<tr>
<td></td>
<td>Detector:</td>
<td>12”H x 10”D x 27” W</td>
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<tr>
<td></td>
<td>Condenser/Pump:</td>
<td>10”H x 10”D x 6” W</td>
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**Weight (Standard Unit):**

- Detector Housing: 35 lbs. (Unshielded)
- Electronics Housing: 40 lbs.
- Condenser/Pump: 8 lbs

**Shipping Weight:** 90 lbs.

- Weight and Dimensions shown above do not include Sample Chiller and Refrigeration Units.

**OPTIONS**

- **Lead Shielding:** 1/8”, 1/2”, 1” thick
- Remote readout via Ethernet
- Network reporting and communication via the ORO overdrive network