TRITIUM MONITOR
For Public Release Level
Model ~ STG-4S/D & STG-5ATL

DESCRIPTION:
Technical Associates’ STG-4S/D and STG-5ATL Tritium monitors are sensitive, rugged stack or effluent monitors for detection and measurement of airborne Tritium.

- The subtractive balanced chamber electrometer circuit decreases background effects to negligible levels.
- The deionized and filtered intake reduces to negligible levels spuriousity based on smokes, dusts, and existing ionization in the air.
- Inlet and outlet hoses allow the return of monitored air to source: interiors of fume hoods, exhaust stacks, etc.
- The STG-5ATL will measure airborne Tritium as HTO in concentrations as low as $1 \times 10^{-7} \, \mu\text{Ci/cc}$ of air in the presence of other isotopes.

All instruments are calibrated at the factory. Calibration check may be performed in the field with a license exempt microCurie level Beta source.
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SPECIFICATIONS:

Ranges:
STG-4S/D: (No range switching)
       Six decade $10^{-7} - 10^{-1}$ µCi/cc - Digital-Auto ranging.
STG-5ATL: Four decade $10^{-7} – 10^{-3}$ µCi/cc - Analog-Log Scale

Background: Essentially eliminated by subtractive balanced chambers.

Smoke, Dust & Ion Elimination: Filter and deionizer reduce effects to negligible levels.

Circuit: Electrometer circuit amplifies net difference between a 50 liter Tritium internal chamber and a background chamber of similar size and configuration.

Detector
STG-4S/D: Air stream is passed through sample chamber to measure all radioactive gas content; normally as Tritium, optionally as other (e.g. Xenon, Krypton, C$^{14}$O$_2$ etc.)
STG-5ATL: After first chamber, HTO is removed from air stream, which is then passed through second chamber. Reading of difference gives concentration of Tritium as HTO in presence of other isotopes or other compounds.

Calibration: Can be calibrated internally with Tritium (or HTO) gas, or on a Gamma calibration course; or can be checked at a single point with an external (not provided) Beta source.

Output:
STG-5ATL: Digital output. One count per $1 \times 10^{-7}$ µCi/cc.
           Optional 0-5 volt or 4-20 mA

Alarm:
       High Level: Red flashing light plus warbling sound
       System Fault Alarm: White steady light

Remote Alarm: TTL closure-failure. TTL closure-high level.

Dimensions: 23" wide x 66" high x 36" deep.

Shipping Weight: 635 lbs.

Optional Accessories: Remote alarm (audible & visual) Model Ral-8 (including 25" of cable). Can be used to 500 feet. 4-20 mA for computer.

Optional Features: Analog - 1 volt/decade
                   Interconnection to/from port of other gas or particulate monitor.
                   Readout as radioactive gas other than Tritium.