

# TRITIUM MONITOR

For Public Release Level

Model ~ STG-4S/D & STG-5ATL

## FEATURES:

- TRITIUM DETECTION
- 6 DECADES (STG-4S/D)
- 4 DECADES (STG-5ATL)

## FM-9 ELECTRONICS

- DIGITAL LCD
- NO RANGE SWITCHING NECESSARY
- MEASURES TRITIUM AS HTO IN PRESENCE OF OTHER RADIOACTIVE GASES (STG-5ATL)
- DIGITAL ACCURACY SENSITIVE TO  $10^{-7}$   $\mu\text{Ci/cc}$
- MEASURES DOSE-RATE & DOSE
- ALARM – VISUAL & AUDIO
- DATA ARCHIVE AND RETRIEVAL
- MICRO PROCESSOR TO ESTABLISH UNITS AND PARAMETERS
- USB & ETHERNET DATA PORT
- DYNAMIC BACKGROUND GAMMA COMPENSATION
- CAN ACTUATE COMPUTER OR REMOTE CONTROL
- CLEANS GAS STREAM OF PARTICULATES & IONS



FM-9 ELECTRONCS  
DISPLAY



EXTERNAL CABINET VIEW  
FILTERS ON OUTSIDE

## APPLICATION:

Stack Monitors for Nuclear Power Plants, Labs: Radiation, Research, Radiopharmacy

## 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.



TECHNICAL ASSOCIATES

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## SPECIFICATIONS:

<b>Ranges:</b>	(No range switching)
<b>STG-4S/D:</b>	Six decade $10^{-7}$ - $10^{-1}$ $\mu\text{Ci/cc}$ - Digital-Auto ranging.
<b>STG-5ATL:</b>	Four decade $10^{-7}$ - $10^{-3}$ $\mu\text{Ci/cc}$ -
<b>Background:</b>	Essentially eliminated by subtractive balanced chambers.
<b>Smoke, Dust &amp; Ion Elimination:</b>	Filter and deionizer reduce effects to negligible levels.
<b>Circuit:</b>	Electrometer circuit amplifies net difference between a 50 liter Tritium internal chamber and a background chamber of similar size and configuration.
<b>Detector</b>	
<b>STG-4S/D:</b>	Air stream is passed through sample chamber to measure all radioactive gas content; normally as Tritium, optionally as other (e.g. Xenon, Krypton, $\text{C}^{14}\text{O}_2$ etc.)
<b>STG-5ATL:</b>	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.
<b>Calibration:</b>	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.

## FM-9 - ELECTRONICS:

<b>Engineering Units:</b>	User can input correct conversion factor and change to any units.
<b>Controls: Front Panel:</b>	On-Off, Alarm-mute, Rate, Integrate, Reset, Digital
<b>Recessed or Internal:</b>	Discriminator level, high voltage. Other adjustable settings: See calibration.
<b>Input Sensitivity:</b>	Adjustable from less than 1 millivolt to 100 millivolt Anti-saturation and Dead-time Corrections are available.
<b>Alarm:</b>	2000 Hz audio tone with Audio "mute" switch + RED LIGHT High current relay. 0-100% of full scale.
<b>Alarm Set Point:</b>	User settable to any point on detector range.
<b>Remote Alarm:</b>	TTL closure-failure. TTL closure-high level.
<b>Data Output:</b>	Two-way USB standard, <b>Optional:</b> Ethernet.
<b>STG-5ATL:</b>	One count per $1 \times 10^{-7}$ $\mu\text{Ci/cc}$ . <b>Optional:</b> 0-5 volt or 4-20 mA
<b>Power:</b>	105-125 volts, 50-60 Hz ( <b>Optional:</b> 220 V)
<b>Construction:</b>	Gasketed aluminum case.
<b>Cables:</b>	User Specified

## FM-9 DIMENSIONS & WEIGHT:

11" W X 11" H X 11" D (18 cm x 18 cm x 18cm).  
8 pounds (3.6 kg)



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- Cabinet Dimensions:** 23" wide x 66" high x 36" deep (58.4 cm x 167 cm x 91.4 cm)
- Shipping Weight:** 350 lbs. (159 kg)
- Optional Accessories:** Remote alarm (audible & visual) Model Ral-8 including 25 inches (63.5 cm) of cable). Can be used to 500 feet (12.7 meters) 4-20 mA for computer.
- Optional Features:** Interconnection to/from port of other gas or particulate monitor.  
Readout as radioactive gas other than Tritium.

TRITIUM SERIES COMPARISON ~ (PUBLIC RELEASE LEVEL OR LOWER)				
	MODEL	MODEL	MODEL	MODEL
	STG-4S/D	STG-5ATL	H3-PLR -5	H3-PLR -7
<b>FEATURES</b>	6 DECADES	4 DECADES	5 DECADES	7 DECADES
	H3 & NOBLE GASES	DETECTS HTO & H3	ALL TRITIUM	ALL TRITIUM
	$10^7 \times 10^{-1} \mu\text{Ci/cc}$	H3 - $10^7 \times 10^{-3} \mu\text{Ci/cc}$ HTO - $1 \times 10^{-7} \mu\text{Ci/cc}$	$1 \times 10^{-7} \mu\text{Ci/cc} - 1 \times 10^{-3} \mu\text{Ci/cc}$	$1 \times 10^{-7} \mu\text{Ci/cc} - 1.0 \mu\text{Ci/cc}$
	SINGLE CHAMBER	DUAL CHAMBER	DUAL CHAMBER	DUAL CHAMBER
	SEES ALL RADIATION ON (1) SINGLE CHANNEL	SEPARATELY ON (2) TWO CHANNELS	USES (1) SINGLE CHANNEL WITH RANGE SWITCHING	USES (1) SINGLE CHANNEL WITH RANGE SWITCHING
	DOSE & DOSE RATE	DOSE & DOSE RATE	READS: 3 SEC, 20 MIN, 1 HR, 24 HR, TOTAL DAILY RELEASE	READS: 3 SEC, 20 MIN, 1 HR, 24 HR, TOTAL DAILY RELEASE



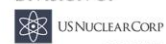
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