



MODEL 2x200-LD PORTABLE TRITIUM IN AIR LEAK DETECTOR

The Overhoff **Model 2x200-LD** Tritium Leak Detector has the unique ability to monitor for tritium compounds and elemental tritium in real time while providing gamma compensation. The two measurement channels, T₂ and T₂O/HTO, are selected with a front panel toggle switch and appear on a single digital display.

The required radiological protection for tritium compounds is much higher than that for elemental tritium. Elemental tritium will combine readily with oxygen to form tritium oxide and also will replace hydrogen atoms in compounds. Therefore the presence of elemental tritium in the working environment is an indication of a current leak in the system or container. Knowing this, the user of the Model 2x200-LD can rapidly locate the point of release and more efficiently secure the source of leakage.

SENSITIVITY

The sensitivity of the **2x200-LD** is better than $\pm 5 \mu\text{Ci}/\text{m}^3$ (± 0.5 DAC) for T₂O. The sensitivity to T₂ is better than 0.02% of the T₂ DAC stated in 10CFR835.

RADON INTERFERENCE, NOISE RESPONSE

Unambiguous measurement of very low tritium levels requires a monitor that can ignore ambient radon. The Model 2x200-LD incorporates a radon suppression circuit and therefore produces accurate and drift-free readings.

GAMMA COMPENSATION

Multiple chambers arranged in cruciform pattern provides superior gamma compensation in any field direction.

FAST RESPONSE

Exceptionally rapid response is due to its unique ability to ignore radon. The instrument has an electronic time constant of only 10 seconds, a pneumatic time constant of about 12 seconds, for an overall time constant of only 15 seconds. Meter readings will reach 90 % of final value within 30 seconds to a step response of aspirated tritium.

FAST WARM UP, NO ZERO DRIFT

After applying power, the initial transient “warm -up” drift effects take less than a minute. Long term drifts have been eliminated and manual zero adjustments are no longer required.

DESICCANT COLUMN

A desiccant column traps the tritium oxide in the sample. The indicating type desiccant changes color from blue to pink when it is exhausted. Regeneration will restore the drying capacity.



T2 and T2O Modes	two channel measurement, switch selectable
High Sensitivity	to $5 \mu\text{Ci}/\text{m}^3$ (0.5 DAC)
Fast Response	15 second time constant
Gamma Compensated	no offset in 5 mR/h field
Response To Radon	suppression circuit ensures noise free operation
No Zero Drift	better than $1 \mu\text{Ci}/\text{m}^3$
Rapid Warm Up	less than 30 seconds

The Model **2x200-LD** can be configured as a “sniffer” to provide real-time indication of the T₂ and T₂O concentrations which allow the user to quickly identify the source of leakage of tritium from containers.

Overhoff Technology Corporation

1160 U.S. Highway 50, Milford, Ohio, 45150-9705 USA

Telephone: 513 248 2400 Fax: 513 248 2402

Email: sales@overhoff.com www.overhoff.com

TECHNICAL SPECIFICATIONS

MEASUREMENT RANGE	Available in the following ranges: i) 1 to 19,999 $\mu\text{Ci}/\text{m}^3$, basic sensitivity of the order of 5 $\mu\text{Ci}/\text{m}^3$ ii) 0.1 to 1,999.9 MBq/ m^3 or DAC iii) 1 to 19,999 $\mu\text{Sv}/\text{h}$
T2 AND T20 MODES	Two channel measurement, switch selectable
ACCURACY, SPAN	$\pm 10\%$ of reading, $\pm 2 \mu\text{Ci}/\text{m}^3$, whichever is greater
NOISE LEVEL AND ZERO STABILITY	$\pm 2 \mu\text{Ci}/\text{m}^3$ (10 second electronic time constant); $\pm 2 \mu\text{Ci}/\text{m}^3$ long term
GAMMA COMPENSATION	multiple chambers arranged in cruciform pattern to completely eliminate errors due to external gamma radiation. Gamma response less than 0.2 $\mu\text{Ci}/\text{m}^3$ per mR/hr for any field direction
ALPHA PULSE SUPPRESSION	a circuit provides recognition and cancellation of undesirable noise spikes due to airborne radon
RESPONSE RATE	30 seconds to reach 90% of final reading
ALARM (ACOUSTIC)	1. Ten position stepped attenuator set point for signal alarm 2 - 1,000 $\mu\text{Ci}/\text{m}^3$, steady tone. An OFF position is included. 2. Low flow produces an intermittent tone 3. Mute switch silences audible tone
ALARM (VISUAL)	signal level: red LED, when tritium exceeds setpoint low flow: yellow LED, flashing, low pump flow low battery: red LED HVPS: red LED illuminates to indicate a malfunction with the high voltage power supply (HVPS) used to bias the ionization chambers
EXTERNAL CONNECTIONS	mini DIN plug for output signal, and for alarms
IONIZATION CHAMBER VOLUME	effective volume: 200 cm^3 ; port to port volume: 660 cm^3
DUST FILTER	HEPA, in-line disposable cartridge, Pall P/N 12082
PUMP AND FLOW RATE	internal rotary vane pump, flow rate nominally 1.5 - 2 LPM
ENVIRONMENTAL	0° C to +40° C, 20 - 90 % relative humidity, non-condensing
BATTERIES	two "D" size NiMH batteries, 10,000 mAh external jack for supplementary power input and charging
POWER CONVERTER	100-240 VAC, 50/60 Hz, .25 A to 3.3 Vdc @ 1.2 A 5.5 mm O.D. x 2.1 mm I.D. Plug, center pin is positive
SIZE AND WEIGHT	7.6" [193mm] L x 5.2" [132mm] W x 6.9" [175mm] H excluding handle, 6.5 lbs (3 kg)
DESICCANT COLUMN	Clear polycarbonate cartridge of indicating desiccant

Includes: 2 "D" size NiMH batteries (installed), sniffer hose, dust filter, 2.3 meter long cable with Mini-DIN plug for J2 output connector at one end, power converter 100-240VAC, and two desiccant columns filled with silica gel.



T20/T2 Switch



Desiccant Cartridge