



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 $5 \mu\text{Ci}/\text{m}^3$ (0.5 DAC) for T2O. The sensitivity to T2 is better than 0.05% 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

The instrument has active gamma compensation with 2x2 ionization chamber geometry.

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.

P.O. Box 182, 1160 U.S. Route 50, Milford, Ohio, 45150-9705 USA
 Telephone 513 248 2400 : Facsimile 513 248 2402
 sales@overhoff.com : www.overhoff.com



MODEL 2x200-LD PORTABLE TRITIUM IN AIR LEAK DETECTOR

MEASUREMENT RANGE	1 – 19,999 $\mu\text{Ci}/\text{m}^3$, basic sensitivity of the order of 5 $\mu\text{Ci}/\text{m}^3$
DISPLAY	0 – 19,999 digits, LCD panel meter
T2 AND T2O 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	$\pm 2 \mu\text{Ci}/\text{m}^3$ (10 second electronic time constant)
ZERO STABILITY	$\pm 2 \mu\text{Ci}/\text{m}^3$ long term
GAMMA COMPENSATION	chambers in a side by side pattern reduce errors due to external gamma radiation.
ALPHA PULSE SUPPRESSION	a circuit provides recognition and cancellation of undesirable noise spikes attributed to airborne radon
RESPONSE RATE	30 seconds to reach 90% of final reading
ALARM (ACOUSTIC)	<ol style="list-style-type: none"> 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 low flow: yellow LED, flashing low battery: red LED
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	internal rotary vane pump
FLOW RATE	nominally 1.5 - 2 LPM
ENVIRONMENTAL	0° C to +50° C, 0 - 95 % relative humidity
BATTERIES	two "D" size NiMH batteries 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



T2O - T2 SWITCH



DESICCANT CARTRIDGE

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PART LISTS

<u>Qty Req'd</u>	<u>Part No.</u>	<u>Description</u>
1	50084	Pump
4	1020686	Ionization Chamber
1	PSF-100A-0.5	Pressure Switch
2	22BH-4-2	Hose Barb, Sample-In
1	230-4-2	Hose Barb, Sample-Out
1	12082	In-Line Dust Filter (Pack of 3)
1	CLIC-51	Holder for Dust Filter No. 12082
1	DMO-742W	LCD Panel Meter
2	20-3320	Control Knob including Cap and Skirt
1	KU402B1/8	Zero Knob
2	B16	Battery Holder
2	B1-XC	Battery Cap
1	MSR320	Alarm Speaker
1	PSA05R-033	AC Adapter
1	RPS-R	AC Plug for Adapter
1	CP-004A-ND	Plug for DC Power
1	163-5004	Jack for DC Power
2	GP450DHC	D-Size NiMH Batteries, Primary Power
4	415	Batteries, 45V Polarizing
2	26930	Indicating Desiccant Column
1	23005	5 lb Jar of Indicating Desiccant

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