

Tritium – C-14 Survey Meter

Model Tri-Cair A, B, Select

FEATURES

- C-14 and T₂O Modes - two channel measurement, switch selectable
- High Sensitivity – to 5uCi/m³ (0.5 DAC) H-3
- Fast Response – 15 second time constant
- Response to Radon – suppression circuit ensures noise free operation
- No Zero Drift – better than 1uCi/m³
- Rapid Warm Up – less than 30 seconds

The TriCair **A, B, Select** can be configured as “sniffer” to provide real-time indication of C-14 and T₂O concentrations allows the user to quickly identify airborne presence of these 2 low energy Beta emitters.

The Overhoff TriCair **A,B, Select** Tritium and C-14 Detector has the unique ability to monitor for tritium compounds and airborne C-14 in real time while providing gamma compensation. The two measurement channels, ¹⁴CO₂ and ³H appear on a single digital display.

The required radiological protection for Tritium compounds is different than that for Carbon-14. The presence of C-14 or Tritium in the working environment may be an indication of a leak in the containment. Knowing this, the user of the TriCair **A, B, Select** can rapidly locate the point of release and more efficiently secure the source of leakage.

SENSITIVITY

The sensitivity of the TriCair **A, B, Select** is better than 5 uCi/m³ (0.5 DAC) for T₂O. The sensitivity to C-14 is better than 6 uCi/m³.

RADON INTERFERENCE, NOISE RESPONSE

Unambiguous measurement of very low tritium and C-14 levels requires a monitor that can ignore ambient radon. The TriCair **A, B, Select** incorporates a radon suppression circuit and therefore produces accurate and drift-free readings.



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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 with 30 seconds to a step response of aspirated tritium or C-14.

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

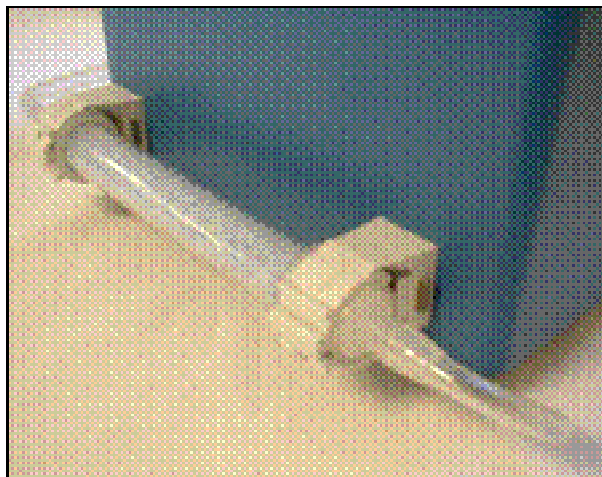
A desiccant column prevents the tritium oxide from entering the C-14 Ion chamber. The indicating type desiccant changes color from blue to pink when it is exhausted. Regeneration will restore the drying capacity.

GAMMA COMPENSATION

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



C-14 – HTO SWITCH



DESICCANT CARTRIDGE

<u>Model</u>	<u>Tritium</u>	<u>Carbon-14</u>	<u>Carbon-14</u>
TriCair-A	T ₂ O	¹⁴ CO ₂	na
TriCair-B	T ₂ O	na	Organic C-14
TriCair-Select	T ₂ O	C-14 mode is ¹⁴ CO ₂	user selectable Organic C-14

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TRITIUM RANGE	1 - 19,999 uCi/m ³ , basic sensitivity of the order of 5 uCi/m ³
CARBON-14 RANGE	1 - 19,999 uCi/m ³ , basic sensitivity of the order of 1.0 uCi/m ³
DISPLAY	0 - 19,999 digits, LCD panel meter
H3 AND C-14 MODES	Two channel measurement, switch selectable
ACCURACY, SPAN	±10 % of reading, ±2 uCi /m ³ , whichever is greater
NOISE LEVEL	± 2 uCi/m ³ (10 second electronic time constant)
ZERO STABILITY	±2uCi /m ³ long term
GAMMA COMPENSATION	chambers in a side by side pattern reduce errors due to external gamma radiation
ALPHA PULSE SUPPRESSION	circuit provides recognition and cancellation of airborne radon noise spikes 30 seconds to reach 90% of final reading
RESPONSE RATE ALARM (ACOUSTIC)	1. Ten position stepped attenuator set point for signal alarm 2 -1,000 uCi/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 battery: red LED
EXTERNAL CONNECTIONS	Mini DIN plug for output signal, and and for alarms
ION 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
BATTERIES	2 "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 m O.D. x 2.1 mm I.D. Plug, center pin is positive
SIZE AND WEIGHT	7.6" [193mm] L x 5.2" [132mm] Wx 6.9" [175mm] H excluding handle, 6.5 lbs (3 kg)
DESICCANT COLUMN	Clear polycarbonate cartridge of indicating desiccant

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