



MODEL 200SB AND 200SB-HTO PORTABLE TRITIUM IN AIR MONITOR

The **Model 200SB** is a low-cost, lightweight portable tritium in air survey meter. The front panel features only three controls, an ON - OFF - SAMPLE switch, and the switch for setting the alarm level. A high volume pump and fast electronics combine to give this instrument a fast overall response. Economy model with medium sensitivity and fast response; particularly useful as an emergency monitor.

SENSITIVITY, RANGE, SPEED OF RESPONSE

The **200SB** is useful for where measurement sensitivities on the order of $10 \mu\text{Ci}/\text{m}^3$ (1 MPCa or $0.1 \text{ MBq}/\text{m}^3$) is sufficient, and where wide range and fast response are needed.

RADON INTERFERENCE, NOISE RESPONSE

For an unambiguous measurement of very low tritium a monitor must be able to ignore response to ambient radon. The 200SB incorporates this capability and therefore produces accurate, fast and drift free measurements.

CONVENIENT FOR USE, FAST WARM-UP TIME

The Model 200SB is ready for use by merely selecting the desired alarm level and activating the instrument power. After applying power, the "warm up" time is less than 30 seconds before it is ready for accurate readings.

GAMMA COMPENSATION

The use of twin, side by side, or coaxial ionization chambers provides good gamma compensation even in moderate background gamma radiation fields. Two 200cc ionization chambers are utilized, one for tritium measurement, one for gamma compensation.

FAST RESPONSE

The high volume pump samples at 3 liters per minute, and fast electronics yields a time constant of 5 seconds. Meter readings will reach 90% of their final value within 12 seconds to a step response of aspirated tritium.

HTO DISCRIMINATION, MODEL 200SB-HTO

The Model **200SB-HTO** measures -HTO only. Includes 6 hose connections and a desiccant column interposed between the measurement and compensation ionization chambers. The 200SB-HTO will specifically measure HTO even in the presence of other radioactive gases, such as noble gases, as well as background gamma. The desiccant can be regenerated for reuse.



Medium Sensitivity	to $10 \mu\text{Ci}/\text{m}^3$ (1 MPCa or $0.1 \text{ MBq}/\text{m}^3$)
Wide Range	to $199,999 \mu\text{Ci}/\text{m}^3$
Very Fast Response	5 seconds to reach 90%
Gamma Compensated	Coaxial Compensation 200cc volume
No Zero Drift	long term zero stability to better than $10 \mu\text{Ci}/\text{m}^3$
Rapid Warm Up	less than 30 seconds
Optional HTO discrimination even in the presence of other radioactive gases.	

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TECHNICAL SPECIFICATIONS

MEASUREMENT RANGE	10 – 199,999 $\mu\text{Ci}/\text{m}^3$, basic sensitivity of the order of 10 $\mu\text{Ci}/\text{m}^3$ Other available measurement ranges: 0.1 to 1,999.9 MBq/ m^3 1 to 19,999 DAC or MPCa
DISPLAY	LCD panel meter
ACCURACY, SPAN	$\pm 10\%$ of reading, $\pm 10 \mu\text{Ci}/\text{m}^3$, whichever is greater
NOISE LEVEL	$\pm 10 \mu\text{Ci}/\text{m}^3$, 1 S.D. (3second electronic time constant)
ZERO STABILITY	after 1 minute (or less) warm up, zero drift less than $\pm 10\mu\text{Ci}/\text{m}^3$
GAMMA COMPENSATION	chambers in a side by side pattern reduce errors due to external gamma radiation.
RESPONSE RATE	5 seconds to reach 90% of final reading
ALARM (ACOUSTIC)	1. Nine position stepped attenuator set point for signal alarm 20 - 10,000 $\mu\text{Ci}/\text{m}^3$, steady tone. 2. Low flow produces a steady tone
ALARM (VISUAL)	signal level: red LED low flow: yellow LED low battery: red LED
EXTERNAL CONNECTIONS	not available
IONIZATION CHAMBER VOLUME	effective volume: 200 cm^3 port to port volume: 220 cm^3
DUST FILTER	external in-line disposable cartridge type
PUMP	high volume internal rotary vane pump
FLOW RATE	nominally 2-3 LPM
ENVIRONMENTAL	0° C to +40° C, 10 - 95 % relative humidity non-condensing
BATTERIES	two "D" size batteries, alkaline
POWER CONVERTER	optional
SIZE	7.6" L, 5.2" W, 4.4" H excluding handle
WEIGHT	5 lbs (2.3 kg)

Other models in the series:

Model 200SB-HTO:

Same as Model 200SB but includes an external desiccant column and additional hose connections to measure only HTO, ignoring all other radioactive gases (noble gases) and gamma fields.

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