



MODEL FP-400 PORTABLE TRITIUM IN AIR MONITOR

The **Model FP-400** is based on Overhoff's standard portable tritium in air monitor, the Model 400SBDyC, but includes smaller 110cc ionization chambers and a faster pump for an overall faster response time. Useful for situations which require a portable tritium in air monitor with good sensitivity and an extremely fast and stable response. Thermally induced zero shifts of the electrometer have been eliminated.

SENSITIVITY

The **FP-400** is useful for measurements as low as $5 \mu\text{Ci}/\text{m}^3$ ($0.2 \text{ MBq}/\text{m}^3$). The Overhoff electrometer, which measures to below 10^{-16} amperes, combines low noise and high zero stability.

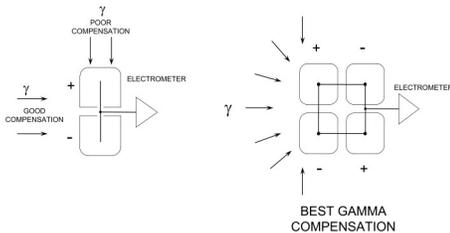
RADON INTERFERENCE, NOISE RESPONSE

For an unambiguous measurement of very low tritium a monitor must be able to ignore response to ambient radon. The FP-400 incorporates this capability and therefore produces accurate, fast and drift free measurements to nearly $\pm 5 \mu\text{Ci}/\text{m}^3$.

TOTAL GAMMA COMPENSATION

Cruciform ionization chamber geometry provides nearly perfect gamma compensation regardless of photon energy, flux gradient or flux direction. Gamma compensation of the FP-400 is typically three orders of magnitude better than instruments using nested or side by side ionization chambers.

GAMMA COMPENSATION

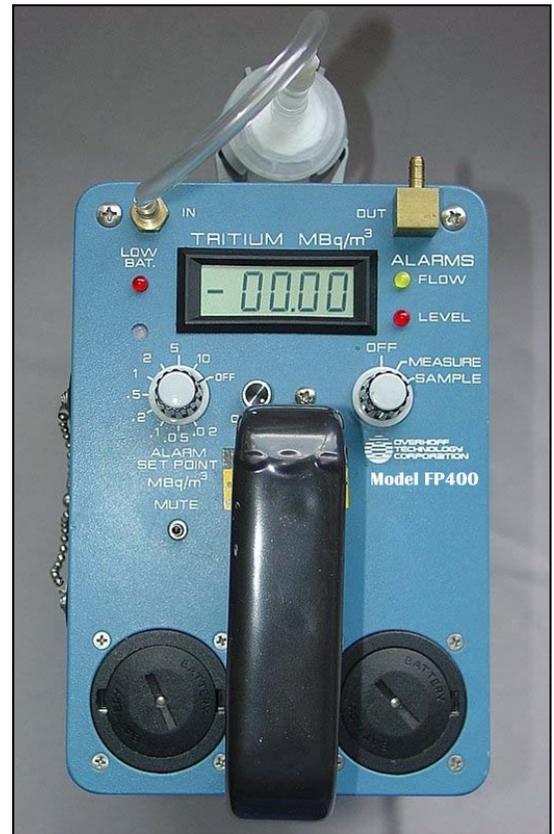


FAST RESPONSE

The exceptionally rapid response is primarily due to the ability to ignore radon. Additionally, (4) 110cc ion chambers are utilized along with a faster pump (2-4 LPM) to provide an extremely fast response. In contrast, the Model 400SBDyC utilizes (4) 200cc ionization chambers and a pump rated for 1.5 - 2 LPM. Meter readings for the FP-400 will reach 90% of final value within 12-15 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.



High Sensitivity	to $5 \mu\text{Ci}/\text{m}^3$ ($0.2 \text{ MBq}/\text{m}^3$)
Fast Response	5 second time constant
Gamma Compensated	virtually no offset in 10 mR/h fields
Response To Radon	suppression circuit ensures noise free operation
No Zero Drift	long term zero stability to better than $1 \mu\text{Ci}/\text{m}^3$
Rapid Warm Up	less than 30 seconds

The Overhoff Technology Model **FP-400** portable tritium monitor is an instrument with unequaled performance in sensitivity, stability, speed of response and gamma compensation.

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TECHNICAL SPECIFICATIONS

MEASUREMENT RANGE	1 – 19,999 $\mu\text{Ci}/\text{m}^3$, basic sensitivity of the order of 5 $\mu\text{Ci}/\text{m}^3$ Other available measurement ranges: 0.1 to 1,999.9 MBq/ m^3 or DAC 1 to 19,999 $\mu\text{Sv}/\text{h}$
DISPLAY	0 – 19,999 digits, LCD panel meter
ACCURACY, SPAN	$\pm 10\%$ of reading, $\pm 5 \mu\text{Ci}/\text{m}^3$, whichever is greater
NOISE LEVEL	$\pm 5 \mu\text{Ci}/\text{m}^3$, 1 S.D. (5 second electronic time constant)
ZERO STABILITY	after 30 seconds (or less) warm up, zero drift less than $\pm 5 \mu\text{Ci}/\text{m}^3$
GAMMA COMPENSATION	multiple chambers arranged in a cruciform geometry reduces errors due to external gamma radiation; volume: 220cc
ALPHA PULSE SUPPRESSION	a circuit provides recognition and cancellation of undesirable noise spikes attributed to airborne radon
RESPONSE RATE	12-15 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. 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	Optional RS-232 Data output
IONIZATION CHAMBER VOLUME	effective measurement volume: 220 cm^3 port to port volume: 240 cm^3
DUST FILTER	HEPA, external in-line disposable cartridge type
PUMP	internal rotary vane pump
FLOW RATE	nominally 2-4 LPM
ENVIRONMENTAL	0° C to +40° C, 10 - 95 % relative humidity non-condensing
BATTERIES	two "D" size NiMH or Alkaline 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 5.7" [145mm] H excluding handle, 6.5 lbs (3 kg)



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