

PORTABLE TRITIUM AIR MONITOR

MODEL 400 AC

FEATURES:

- HIGH PERFORMANCE PORTABLE TRITIUM AIR MONITOR
- SMALL, LIGHTWEIGHT
- DETECTORS: FOUR 200 cc ION CHAMBERS
- GAMMA COMPENSATION
- FAST RESPONSE
- HIGH STABILITY
- AUTOMATIC RECALIBRATION SOFTWARE
- SENSITIVITY: 2 $\mu\text{Ci}/\text{M}^3$ TO 0.14 MBQ/M^3
- RECHARGEABLE BATTERIES AND CHARGER
- RADON REJECTION
- NON-LATCHING ALARMS: AUDIO / VISUAL
- ALPHA PULSE SUPPRESSION
- COMPUTER INTERFACE - RS-232



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APPLICATION:

MODEL 400AC is a small, lightweight Tritium air monitor.

DESCRIPTION:

Gamma compensation with an on/off toggle switch for easy Gamma calibration, Four 200cc ion chambers arranged in a cruciform geometry provide nearly perfect gamma compensation regardless of photon energy, flux gradient, or flux direction. Two ion chambers are used for measurement (400cc total) and two for gamma compensation (400cc total). The Model 400AC is unequalled in sensitivity, stability, speed of response, and gamma compensation.

Power is with rechargeable batteries. Onset of the battery depletion is signaled by illumination of an LED located next to the meter face. This same LED will also signal red when there is a malfunction with the high voltage power supply. A nine-position alarm level stepped attenuator, adjustable over partial scale (2 to 1,000 $\mu\text{Ci}/\text{m}^3$) is located on the front panel. A steady tone is emitted by an acoustic signaler if the measurement exceeds the alarm set-point (illuminates red LED), or if the sample airflow has been interrupted and is too low (illuminates yellow LED). The alarms are non-latching.

Zero adjustment is unnecessary, the electrometer is completely temperature stable and shows zero drift from 0° C to 50° C due to special design and careful selection of an ultra-high impedance semiconductor with low internal current leakage and long-term DC stability. The 400AC can reliably measure currents as low as 10^{-16} amperes and the span calibration is permanently stable. The ionization chamber polarizing voltage is supplied by an electronic low-noise regulated dual high-voltage power supply ($\pm 80\text{VDC}$). The 400AC includes proprietary radon recognition and elimination circuitry to provide accurate, fast, and drift-free measurement.



TECHNICAL ASSOCIATES

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DIVISION OF



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OTC08-UCLE

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SPECIFICATIONS:

MEASUREMENT RANGE	1 – 19,999 $\mu\text{Ci}/\text{m}^3$ Other available measurement ranges: 0.1 to 1,999.9 MBq/m^3 or DAC 1 to 19,999 $\mu\text{Sv}/\text{h}$
SENSITIVITY	2 $\mu\text{Ci}/\text{m}^3$ (0.1 MBq/m^3)
DISPLAY	0 – 19,999 digits, LCD panel meter
ACCURACY, SPAN	$\pm 10\%$ of reading, $\pm 2 \mu\text{Ci}/\text{m}^3$, whichever is greater
NOISE LEVEL	$\pm 1 \mu\text{Ci}/\text{m}^3$, 1 S.D. (10 second electronic time constant)
ZERO STABILITY	After 30 seconds (or less) warm up, zero drift less than $\pm 1 \mu\text{Ci}/\text{m}^3$
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)	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 HVPS: Red LED Illuminates To Indicate A Malfunction With The High Voltage Power Supply (HVPS) Used To Bias The Ionization Chambers
EXTERNAL CONNECTIONS	RS232 serial data output for tritium measurement, level alarm status and calibration
IONIZATION CHAMBER VOLUME	Effective Volume: 400 Cm^3 Port To Port Volume: 440 Cm^3
DUST FILTER	External In-Line Disposable Cartridge Type
PUMP	Internal rotary vane pump, flow rate: nominally 1.5 – 2 LPM
ENVIRONMENTAL	0° C to +40° C, 20 – 90 % relative humidity non-condensing
BATTERIES	Rechargeable 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)



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CALIBRATION

Automatic Calibration using pc-based software (included)
Manual Calibration by adjusting a calibration potentiometer

Accessories included:

- 2 "D" Size NiMH Batteries
- 2.3 meter DB9 cable for RS-232 serial data output
- Sniffer hose
- Dust filter
- AC Power converter
- Carrying case (optional)



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