

ALPHA/BETA/GAMMA AIR MONITOR

MODEL # FM-7-AB2

FEATURES:

- REAL TIME ALARM
- LINE OPERATED
- PORTABLE
- INTEGRATED EXPOSURE
- STANDARD FM-7 MODULES
- CAN DRAW AIR FROM HOOD, DUCT, ETC.
- QUICK CHANGE FILTER CARTRIDGE
- REGULATED AIR FLOW
- RS-232 COMPUTER INTERFACE
- **OPTIONAL BUILT-IN INTERNET SERVER FOR AUTHORIZED READOUT FROM ANYWHERE**



Figure 1: FM-7AB2

APPLICATION: The **FM-7-AB2** Air Monitor assures safety against airborne radioactivity contamination by means of constant check with alarm and record capability. It provides integrated exposure information and can provide hard copy via external printer or computer. It is a complete system but may be expanded per need with modules of the FM-7 series. The **FM-7-AB2** is the **more sensitive and versatile version** of the broadly used long time standard, the **FM-5-AB2**. It may be used to monitor stack effluent down to EPA levels as well as hoods or workplace air.

DESCRIPTION: The **FM-7-AB2** uses a standard filter in TA's unique quick-change, no-leak holder to trap any airborne radioactivity. The filter is under constant surveillance via both an alpha scintillator and a beta pancake GM tube. Air is drawn by a regulated pump through a three-foot inlet hose and exhausted via a flow meter through another three-foot hose. These may be extended to allow monitoring of hoods, glove boxes, stacks, etc. Time is recorded by an odometer type timer wired into the pump circuit. The unit is completely self-contained and portable. Complete with 100 filters.

SPECIFICATIONS:

Alpha Sensitivity: 1KBq/m^3 Alpha ($3 \times 10^{-2} \mu\text{Ci/m}^3$) = ($3 \times 10^{-8} \mu\text{Ci/cc}$) is easily measured in one hour at 70 lpm flow rate.

Beta Sensitivity: Limit of sensitivity (as Cs-137 at 70 liters/minute air flow rate) is $4 \times 10^{-13} \mu\text{Ci/cc}$ integrated over an 8 hour period, or $8 \times 10^{-14} \mu\text{Ci/cc}$ for a 40 hour period. This corresponds to $2 \times 10^{-10} \mu\text{Ci/cc}$ per minute of operation, which is equal to 0.6% of the California Safety Code Title 17 and USNRC Title 10 limit for 40 hour weekly exposure to most hazardous beta and/or gamma emitter in absence of Ac^{227} .

TA **TECHNICAL ASSOCIATES**
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\$Revision: 1.3 \$

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SPECIFICATIONS (Continued):

Alpha Detector:	2" dia. probe, diameter thin Zn(S) Alpha scintillation detector, Model PAS-8.
Beta Detector:	2" dia. T-1190 GM pancake detector with Beta window to eliminate alpha cross talk, or with 2mg/cm ² window to allow C ¹⁴ and S ³⁵ detection.
Electronic Modules Include:	MVR-5R Power and H.V. Bias Supply. FIL-7DP Programmable Scaler with Integrator and RS-232. Computer Interface and Alarm. MGC-23 RS-232 Computer Interface (internal). MAC-5 Air Control Timer; Low Flow Alarm and Flowmeter. MGA-5202 Single Channel Analyzer, High Voltage. WIN-W Data Logger Software Optional .
Pump:	Muffler and trap included. 115V 60Hz 2A. (230 V 50-60 Hz optional).
Shielding:	1" lead about sample and detector.
Beta Range:	1 x 10 ⁻¹³ to 1 x 10 ⁻⁷ μCi/cc or (Ci/m ³).
Alpha Range:	1cpm to 100,000cpm, 3 x 10 ⁻⁶ to 3 x 10 ⁻¹ μCi on filter.
Alarm:	Settable. 2000 Hz beeper and red flasher.
Response Time:	Settable 1 second to 40 hours.
Readout:	6 digit LED.
Power:	115V, 50-60 Hz (230 V Optional).
Flow Rate:	Regulated. Normally set at 70 liters/min.
Filters:	Includes package of 100 filters. Can also use membrane or glass fiber filters.
Case:	Electronics housed in enameled aluminum carrying case; handles included or may be rack mounted.
Dimensions:	Excluding pump and detector assembly: 21"W x 13"H x 15" D. Detector assembly 5"W x 10"H x 6" D. Pump assembly 8"W x 8"H x 14"D.
Accessories:	Filter: Free flowing high retention filter paper.
Shipping Weight:	84lbs.
Options:	FM-7AB2SJ - substitute a solid state alpha detector (to replace alpha scintillator) allows alpha energy discrimination and Radon rejection.

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