

PET, IODINE, or Tc-99m DTPA AIR MONITOR

GAS & PARTICULATE

Model - FM-9-ABNI

FEATURES:

- DETECTS ALPHA, BETA, POSITRON, IODINE – I-125, I-131, F-18, Tc-99m DTPA (diethylene-triamine-pentaacetate)
- DISPLAYS AIRBORNE CONCENTRATION – PARTICULATES AND RADIOACTIVE CHEMICALS
- MEASURES INTEGRATED EXPOSURE
- EXCEPTIONAL HIGH SENSITIVITY
- REAL TIME ALARM; AC LINE OPERATED
- STANDARD FM-9 MODULES
- CAN DRAW AIR FROM HOOD, DUCT, ETC.
- QUICK CHANGE FILTER CARTRIDGE
- TWO AIR PUMPS AVAILABLE PER CHOICE: 65 LPM OR 120 LPM
- REGULATED AIR FLOW
- DATA ARCHIVE & RETRIEVAL
- DATA UPDATES EVERY FEW SECONDS: USER SETTABLE
- COMPUTER INTERFACE – USB OR ETHERNET
- BENCH TOP OR TRANSPORTABLE / OPTIONAL CART MOUNTED UNIT
- **OPTIONS:** REMOTE DISPLAY
HIGH VOLUME PUMP
CART
- **IP 54**

FM-9-ABNI



Shield

Detector PGS-3

USERS:

- Hospitals / Research
- Power Plants
- National Labs

APPLICATION:

The *FM-9-ABNI* Air Monitors assure 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 and may be expanded per need with modules of the **FM-9** series.

The *FM-9-ABNI* may be used to monitor stack effluent down to EPA levels as well as hoods, glove box or workplace air.

HOSPITALS: *Protect Workers, Patients, Community*

- **Iodine** Monitor for thyroid assessment & treatment areas **Positron** Monitor for all PET scan facilities.
- **Tc-99m DTPA** Air Monitor for areas where bone scans and DTPA lung function studies take place.

POWER PLANTS: *Protect Workers, Community*

- **Radiation Building. Containment. Chemistry lab.** For detection of Iodine & other radio chemicals.

NATIONAL LABORATORIES: *Protect Workers, Community*

- **Sees** airborne particulates. **Sees** airborne radio chemicals of all types except Noble Gases



TECHNICAL ASSOCIATES

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OTCOB-UCL

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DESCRIPTION:

The *FM-9-ABNI* uses a standard charcoal filter in TA's unique quick change, no leak holder to trap any airborne Radio Iodine.

The filter is under constant surveillance via a thin window scintillation detector. Air is drawn by a regulated pump through included three-foot inlet hose and exhausted via a flow meter through another included three-foot hose. (**OPTIONAL:** User specified length)

Time is recorded by an odometer type timer wired into the pump circuit.

The unit is completely self-contained and portable. Complete with 10 filter cartridges.

OPTIONS:

Detector set up: Cart mounted provides transportability. Detector, air pump, hoses.

Full set up: Cart mounted: Electronics, Detector, air pump, hoses.

Remote: If electronics are located away from the detector, air pump, hose set up, a connection cable between the two locations is an option. User specified length.

Hose Length: Other length hoses available upon request for monitoring of hoods, glove boxes, stacks, etc.

Two air pump options are available upon user preference: 65 lpm or 120 lpm.				
PUMP: 56 liter/minute			PUMP: 120 liter/minute	
Time	Sensitivity		Time	Sensitivity
10 sec	$5 \times 10^{-3} \mu\text{Ci/l}$		10 sec	$2 \times 10^{-3} \mu\text{Ci/l}$
2 min	$1 \times 10^{-4} \mu\text{Ci/l}$		2 min	$0.5 \times 10^{-5} \mu\text{Ci/l}$
60 min	$8 \times 10^{-7} \mu\text{Ci/l}$		60 min	$3 \times 10^{-7} \mu\text{Ci/l}$
8 hr	$8 \times 10^{-8} \mu\text{Ci/l}$		8 hr	$4 \times 10^{-8} \mu\text{Ci/l}$
1 Week	$8 \times 10^{-13} \mu\text{Ci/l}$		1 Week	$8 \times 10^{-11} \mu\text{Ci/l}$

This corresponds to $2 \times 10^{-10} \mu\text{Ci/ml}$ minute exposure 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.

DETECTOR:

Shielded model **PGS-3** for sensitivity to **ALL** Iodine and Positron emitters.

2" diameter probe with thin window, 1" x 1" thick crystal, scintillation detector.

ELECTRONIC MODULES INCLUDE:

Power Supply and MV-5.12.24.

MAC-9: Air Control Timer; Low Flow Alarm Flowmeter

MGA-5: Single Channel Analyzer -User settable for specific energy of interest

FM-9: On-Board computer with color monitor



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SINGLE SCREEN DISPLAY DASHBOARD: CURRENT DATA & SYSTEM STATUS:

Display: 7" Color LCD monitor built-in user data display.

Electronics Power: AC In line

- **Concentration**
- **Total Activity on Filter**
User Settable Units: (cps, Bq, μCi , Bq/m^3 , $\mu\text{Ci/l}$, DAC, DAC-hr etc.)
- **Raw Counts**
- **Flow Status**
- **Alarms – Audio & Visual On-screen red-light alert - User Settable.**
- **System Status; System Error**
- **Alert Change Filter Due to High Activity Build Up –**
 - **Range Typically Set at 500 kBq or 13.5 μCi User Settable.**
- **Air Flow Rate Accessible via Display**

Alarm: On-screen red-light alert; audible alarm - User Settable

Pump: Quiet Green Turtle Pump – AP-3V included.

Pump Power: 115V 60Hz 2Amps. **Optional:** 220 V 50-60 Hz.

Flow Rate: 35 – 200 l/m (Normally set at 120 liters/min.)

Mass Flow Meter: Real-Time air flow rate-data feeds directly into data analyzer software.
Onboard computer for highest concentration accuracy eliminating need for manual adjustment of High and Low Flow Rates.

Temperature Range: 20° to 130° F. (-7° to 54° C.) RH 90%
Total change in system gain is less than $\pm 5\%$

Finish: Baked enamel, easily cleaned.

WEIGHT AND DIMENSIONS:

ITEM	WEIGHT	DIMENSION
Electronics	20 lbs. (9.07 kg)	21"W X 16"D X 11"H (53.3 cm x 40.6 cm x 27.9 cm)
Pump	8 lbs. (3.6 kg)	6"W X 6"D X 8"H (15.2cm x 15.2 cm x 20.3 cm)
Detector Shield with Detector	30 lbs. (13.6 kg)	13"L X 6"W X 6"H (33 cm x 15.2 cm x 15.2 cm)
Approximate Shipping Weight	65 lbs. (29.4 kg)	



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OPTIONS:

- Electronics Connector Cable between Detector Set Up and Electronic / Display – Cable Length User Specified
- Cart
- Longer Hoses, Length User Specified
- Higher Volume Pump Upon Request

FM-9-ABNI for Iodine 125						
Low End Sensitivities (MDA)						
Pump 56 Liter/Minute				Pump 120 Liter/Minute		
Count time Air flow time	Sensitivity	Units		Count time Air flow time	Sensitivity	Units
10 sec	5.00E-03	uCi/L		10 sec	2.00E-03	uCi/L
2 min	1.00E-04	uCi/L		2 min	5.00E-04	uCi/L
60 min	8.00E-07	uCi/L		60 min	3.00E-07	uCi/L
8 hr	8.00E-08	uCi/L		8 hr	4.00E-08	uCi/L
1 week	8.00E-10	uCi/L		1 week	8.00E-11	uCi/L
10 sec	2.00E+05	Bq/m ³		10 sec	8.00E+04	Bq/m ³
2 min	4.00E+03	Bq/m ³		2 min	2.00E+04	Bq/m ³
60 min	3.20E+01	Bq/m ³		60 min	1.20E+01	Bq/m ³
8 hr	3.20E+00	Bq/m ³		8 hr	1.60E+00	Bq/m ³
1 week	3.20E-02	Bq/m ³		1 week	3.20E-03	Bq/m ³



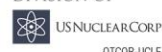
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