

# ALPHA PARTICULATE AIR MONITOR

## MODEL # FM-7MA2

### FEATURES:

- RUGGED DIFFUSED JUNCTION DETECTOR
- QUICK CHANGE FILTER
- REAL TIME OPERATION
- PROVIDES LOCAL OR REMOTE SAMPLING
- RS-232 OUTPUT TO COMPUTER OR PRINTER

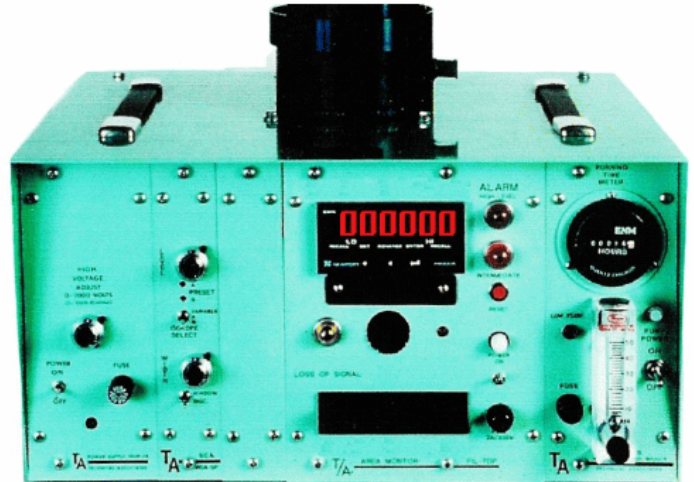


Figure 1: FM-7MA2

**APPLICATION:** The FM-7MA2 is an ideal instrument to assure safety against airborne Alpha radiation, even in high or varying background situations. With presettable alarm point and built-in RS-232 output to computer or printer. The FM-7MA2 is designed for stand alone operation. The system provides integrated exposure information and has pulse output available. The FM-7MA2 is a complete system but may be expanded according to the needs of the user utilizing the many modules of the FM-7 series.

**DESCRIPTION:** The FM-7MA2 system utilizes a solid state detector and two coordinated single channel analyzer windows. The sample window (PHA allows the user to preset specific energy level for sample (eg. Radium A peak), measuring Pu-239 or other alpha emitters in the presence of significant or changing Radon-Thoron background. The count rate is read on the front panel digital display. These meters have a 6 digit display for both rate and integrated information. The user can select the operating modes: gross count, pulse height analyzing (PHA), or PHA with background subtract (PHA-SUB). The high level alarm trip point is settable over the entire range. When activated, the system provides a flashing red beacon and loud bell for visual and audible warning. An adjustable alarm delay prevents short term transient alarms. The system uses a quick change 47mm filter. The unit may be plumbed to an air pump such as AP-2 or AP-4, hood exhaust or in-house air system. Included with the FM-7MA2 are six feet of plastic tubing, a box of 100 Millipore SM filters and complete users manual.

### ACCESSORIES AND OPTIONS AVAILABLE:

4-20 mA Process Loop Transmitter.  
Remote Alarm  
Remote Readout

**TA**

## TECHNICAL ASSOCIATES

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\$Revision: 1.2 \$

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### SPECIFICATIONS:

<b>Detection:</b>	1% of MPC of Pu-239 can be detected with average Radon-Thoron background.
<b>Counting Efficiency:</b>	20 percent of 2 pi with wide window setting and 47mm Pu-239 source in the filter holder.
<b>Detector:</b>	Solid state detector, cleanable silicon diffused junction with a 490 sq. mm area and a typical alpha resolution of 60 KeV maximum.
<b>Ranges:</b>	.0005 Bq with 1 hour time constant setting equivalent to $7 \times 10^{-7}$ Bq/m <sup>3</sup> at 70 liter/min air flow.
<b>Response time:</b>	1 sec. to 10,000 sec.
<b>Modules and</b>	
	MFT-5A Sample Detector
	MAC-5 Air Flow Control
	MAR-6 Alarm Relay and Acknowledge (bell disable)
	MVR-5R Power Supply
	SUB-5 Three level energy analyzer
	AIR-5B Air Inlet-Outlet
	MPL-5 Process Loop Transmitter (optional)
	FIL-7 Digital Process Readout with RS-232 Output
<b>Functions Include:</b>	
<b>Filters:</b>	Includes a package of 100 Millipore SM 47mm filters.
<b>Temperature Range:</b>	20 to 130 degrees F. (7 to 54 degrees C.) Total change in system gain is less than $\pm 5$ .
<b>Finish:</b>	Baked enamel, easily cleaned.
<b>Weight:</b>	35 lbs.
<b>Power:</b>	115V, 60 Hz (230 Volts, 50 Hz optional.)

### CONTROLS, FRONT PANEL:

Master power switch for all electronics.  
Power On for pump power and running time register.  
Bias Voltage Adjust, 0-50 Volts.  
High Level alarm set pot.  
Operate / Calibrate button.  
Alarm Set button, displays alarm setting on meter.  
Alarm Reset.  
Bell Disable/Alarm Acknowledge switch  
Percent subtract pot.  
Threshold/Discriminator, ten turnpot with 1,000 division dial.  
Sample window (PHA) always constant above threshold, ten turn pot with 1,000 division dial.  
Mode Switch - Gross Count, PHA, PHA-SUB.

### INDICATORS:

Alarm Beacon, rotating.  
Alarm Bell, fast ringing.  
6 digit LED.  
High Level Alarm Lamp.  
Low Level, Loss of Signal Lamp.  
Running Time Meter.  
Air Flow Rotameter.  
"Power On" Pilot Light for electronics  
"Power On" Light for pump power.  
Bell Disable / Acknowledge Light.



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