

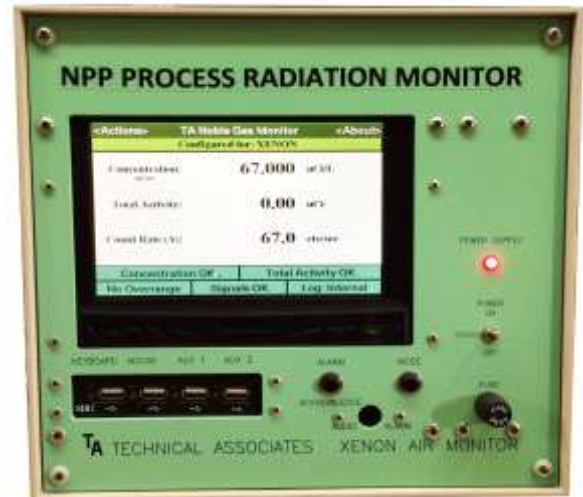
BETA PARTICULATE AIR MONITOR

β 粒子空气监测器

Model ~ FM-5-M2

FEATURES:特点

- DETECTS BETA PARTICULATES
- 探测 β 粒子
- QUICK CHANGE FILTER
- 快速更换过滤网
- REAL TIME CONTINUOUS OPERATION
- 实时连续工作
- LOCAL OR REMOTE SAMPLING
- 本地/远程取样
- INTEGRATED EXPOSURE CHART RECORDER
- 综合辐射暴露条形图记录
- MODULAR ELECTRONICS DESIGN
- 模块化电子学设计
- FOUR π LEAD SHIELDING 1" - 2" THICK
- 4 π 铅屏，厚度1"-2"
- REGULATED AIR FLOW
- 调节气流
- OIL-LESS GREEN TURTLE PUMP
- 无油绿龟泵。



FM-5-M2
ELECTRONICS



FM-5-M2
SAMPLE HOLDER
Contains (2) 2" GM
Pancake Tubes

APPLICATION:应用

The **FM-5-M2** Air Monitors assure safety against airborne radioactivity contamination by means of constant check with alarm and record capability. It provides integrated exposure information and has digital output available.

It is a complete system but may be expanded per need with modules of the **FM-9** series.

FM-5-M2空气监测器通过连续检测报警记录功能监测气溶胶辐射污染确保安全，提供综合辐射信息及数字输出，为完全一体系统，但可以根据需要用FM-9系列模块拓展。

DESCRIPTION: 描述

The **FM-5-M2** is an all modular system and uses standard 47-55mm air filters held in unique quick-change holder.

FM-5-M2全模块系统使用标准47-55mm空气过滤器，带独特快速更换托架。

- Two detector tubes are contained in a lead shielded chamber to collect & measure Beta particulates in the air.
- 两个探测器管封装在铅屏室内，用来进行收集&测量空气中的β粒子。



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- One detector measures the Beta contamination.
- 一个探测 β 污染物
- The second detector is used for background subtraction to correct the FM-5-M2 response for changes in ambient Gamma radiation.
- 一个用来测本底以更正FM-5-M2对环境伽马辐射变化的响应
- Air flow is regulated and adjustable and is supplied by the oil-less **Green Turtle Pump**.
- 气流可调节，使用无油绿龟泵
- Alarm features include an audible alarm and red rotating beacon as well as low level alarm.
- 报警功能包括响铃，红色转灯和低限报警。
- The FM-5-M2 has an auxiliary provision to remote the alarm functions.
- FM-5-M2可实现远程报警功能。
- Time is recorded by an odometer type timer wired into the pump circuit.
- 与泵电路连接的里程表式计时器记录时间
- Air is drawn 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...
- 3英尺长管子抽进空气，再由另一条3英尺长管子排出，管子可延长以便监测排风管，手套箱和烟道...
- The unit is completely self-contained and is transportable.
- 本系统完全一体，可移动

SPECIFICATIONS: 规格

ELECTRONICS: 电子学

Modules Include: 型号包括:

- MVR-5R: Power Supply Module.
● 电源模块
- MLB-5Q: Alarming Logarithmic Ratemeter with Background Subtract.
● 报警对数计量仪带本底扣除
- MRR-5L: Recorder - 2 1/4" chart.
● 录入器-2 1/4"图表
- MAC-5: Air Control Timer with Airflow Meter.
● 带流量计的空气控制计时器
- MAR-6: Alarm Relay Module.
● 报警继电器模块
- MFT-5: Filter - Detector Module.
● 过滤器-探头模块

Natural Background Response: 自然本底响应



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With Background subtract turned off, typically 25cpm with clean filter installed.

带本底扣除关闭功能，典型25cpm，带干净滤网

Background Subtraction: Compensates for approximately 90% of Gamma background.

本底扣除：伽马本底补偿接近90%

Typical background count at 0.02mR/hr is 2-4cpm.

典型本底计数0.02mR/hr is 2-4cpm

Ranges: Four decades: 10-100,000cpm.

量程：4量程：10-100,000cpm

Response Time: Logarithmic, varies with count rate.

响应时间：对数，随计数率变化

Sensitivity: 1×10^{-12} $\mu\text{Ci}/\text{cc}$ $\text{Sr}^{90}\text{Y}^{90}$ after 4 hours, at 60 L/min.

10^{-4} μCi per week (as Beta over 0.1MeV) integrated content of entire air amount drawn through system.

灵敏度：60升/分钟流量，4小时后为 1×10^{-12} $\mu\text{Ci}/\text{cc}$ $\text{Sr}^{90}\text{Y}^{90}$

系统内气体总量每周为 10^{-4} μCi

This corresponds to 10^{-8} $\mu\text{Ci}/\text{ml}$ minute exposure which is better than 1% of California Safety Code Title 17 and NRC Title 10 limit for 40 hour exposure to most hazardous beta and/or gamma emitter in absence of Ac^{227} .

这相当于每分钟暴露 10^{-8} 微居里/毫升，优于加州安全守则第 17 和 USNRC 第 10 条的每周 40 小时对最危险 β 和 /或 γ 放射器的暴露标准，无 Ac^{227} 情况下。

Counting Efficiency: Approximate efficiency for 47mm diameter standard plated sources

计数效率：直径47mm标准源接近效率为：

- 25 percent of 2 Pi for Beta over 0.1MeV (including Tc^{99})
- 0.1MeV以上 β 2 π 为25%
- 50% of 2 Pi for $\text{Sr}^{90}\text{Y}^{90}$.
- $\text{Sr}^{90}\text{Y}^{90}$ 2 π 为50%。

Detectors: Two each thin window 1 3/4" x 1.4mg/cm² pancake GM detectors Model T-1190.

探头：带薄窗1 3/4" x 1.4mg/cm²扁平管探头，型号T-1190

Shielding: 1" - 2" (5.1cm) lead shield, in all directions 4 Pi.

屏蔽：全角4 π，1" - 2" (5.1cm)铅屏

Filters: Includes package of 100 filters #41, 50mm.

过滤器 包括一包100片滤网 #41, 50mm

Optional: Membrane paper or glass fibre filters.

选购：纸膜或玻璃纤维

Temperature Range: 20 °F to 120°F (-7°C to 49°C) with less than ±20% change in calibration and alarm point.

温度范围：20 °F - 120°F (-7°C - 49°C) 刻度和报警点变化小于±20%

Power: 115V, 60Hz (Optional 230V, 50Hz).

电源：



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WEIGHT & DIMENSIONS: 重量和尺寸

Dimensions:	Electronics:	17" W x 10"H x 14.5" D. (Excluding Bell and Beacon)
尺寸:	电子学:	
	Detector assembly:	8"W x 15" H x 12" D.
	探头组件	
	Pump assembly:	8"W x 8"H x 14"D.
	泵组件	
Weight:	Electronics:	25 lbs
重量:	电子学	25磅
	Detector:	100 lbs
	探头	100磅
Shipping Weight:	130lbs.	
装运重量:	130磅	

SYSTEM OVERVIEW: 系统综述

DESCRIPTION 描述	FM-5-M2
Read-Out Units 读出单位 Optional Read-Out Units 可选读出单位	μCi/cc Specify at Time of Order 订购时声明
Measures 测量	Airborne Concentration 气溶胶浓度



Oil-Less Green Turtle Air Pump



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