

BETA PARTICULATE AIR MONITOR Model # FM-5M2

FEATURES:

- QUICK CHANGE FILTER
- REAL TIME
- LOCAL OR REMOTE SAMPLING
- INTEGRATED EXPOSURE CHART RECORDER
- CONTINUOUS OPERATION
- COMPLETELY MODULAR DESIGN
- FOUR PI LEAD SHIELDING 2" THICK
- REGULATED AIR FLOW
- WITH OPTIONAL PUMP AP-2 OR AP-4



APPLICATION: The **FM-5M2** Air Monitor is an ideal device to assure safety against airborne radioactive contamination even in high background or varying background situations, 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-7 series.

DESCRIPTION: The **FM-5M2** is an all modular system which uses standard 47-55mm air filters held in unique quick-change holder and two detector tubes contained in a lead shielded chamber to collect and measure beta particulates in the air. One detector measures the beta contamination while the second detector is used for background subtraction to correct the FM-5M2 response for changes in ambient Gamma radiation. Air flow is regulated and adjustable and is supplied by the **optional** AP-2 or AP-4 vacuum pump. The FM-5M2 alarm features include and audible alarm and red rotating beacon as well as low level alarm. The FM-5M2 has an auxiliary provision for remoting the alarm functions.

Time is recorded by an odometer type timer wired into the pump circuit. 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... The unit is completely self-contained and is transportable.

TA TECHNICAL ASSOCIATES

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BETA PARTICULATE AIR MONITOR

Model # FM-5M2

SPECIFICATIONS: Three additions to Technical Associates Floor Monitor Group.

Sensitivity: Sensativity is 1×10^{-12} $\mu\text{Ci/cc Sr}^{90}\text{Y}^{90}$ after 4 hours, at 60 L/min; 10^{-4} μCi per week (as beta over 0.1MeV) integrated content of entire amount of air drawn through system. This corresponds to 10^{-8} $\mu\text{Ci/ml}$ 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^{277} .

•**Counting Efficiency:** Approximate efficiency for 47mm diameter standard plated sources 25 percent of 2 Pi for beta over 0.1MeV (including Tc^{99}) and 50% of 2 Pi for $\text{Sr}^{90}\text{Y}^{90}$.

•**Detectors:** Two each thin window $1 \frac{3}{4}$ " x 1.4mg/cm^2 pancake GM detectors Model T-1190.

•**Natural Background Response:**

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

•**Background Subtraction:** Compensates for approximately 90% of Gamma background. Typical background count at 0.02mR/hr is 2-4cpm.

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

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

•**Response Time:** Logarithmic, varies with count rate.

•**Modules Include:**

MVR-5R: Power Supply Module.

MLB-5Q: Alarming Logarithmic Ratemeter with Background Subtract.

MRR-5L: Recorder - 2 $\frac{1}{4}$ " chart.

MAC-5: Air Control Timer with Airflow Meter.

MAR-6: Alarm Relay Module.

MFT-5: Filter - Detector Module.

•**Filters:** Includes package of 100 filters #41, 50mm, can use membrane paper or glass fibre filters.

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

•**Finish:** Baked Enamel, easily cleaned.

•**Dimensions:** Excluding bell and beacon: 17" W x 18" H x $14 \frac{1}{2}$ " D.

•**Weight:** 110lbs.

•**Shipping Weight:** 130lbs.

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

Model:	AP-4	AP-2
Dimensions:	7" W x 16" H x 28" L	6" W x 8" H x 13" L
Weight:	24 lbs.	20 lbs.
Flow Rate:	Regulated $\pm 5\%$ from near zero to maximum pump capacity 120 liters/min (4cfm).	Adjustable 30 liter/min (1cfm)
Pump Type:	Oilless, Carbon Vane or Equivalent.	Oilless, Carbon Vane
Motor:	115V, 60Hz, 6 amps.	115V, 60Hz, 2 amps

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