

# BAM-1020 PM Monitoring System

## EPA-Approved Continuous PM Monitoring System

The BAM-1020 is an EPA designated method for the measurement of PM10 (EPQM-0798-122) and PM2.5 (EQPM-0308-170). It operates on the well-established principle of beta attenuation.

The monitor can be equipped with various inlets for the continuous measurement of TSP and PM1.

The BAM-1020 is very easy to operate, and has become the preferred choice for measuring airborne particulate matter. It provides excellent correlation to gravimetric reference methods. Moreover, it is insensitive to vibration, fluctuations in ambient temperature or humidity and it preserves the integrity of semi-volatile organic and inorganic matter.

### Principle

The BAM-1020 determines the amount of mass deposited on a filter tape by measuring the amount of beta attenuation before and after a sampling interval. During sampling, the flowrate is precisely controlled.

The mass and sample volume are used to establish the ambient PM concentration, expressed as  $\mu\text{g}/\text{m}^3$  or  $\text{mg}/\text{m}^3$ .

Reliable, accurate measurements by the BAM-1020 are assured with an automatic zero and span calibration conducted during every measurement cycle.

The zero value is obtained by twice measuring the amount of beta attenuation through the "blank" filter before every sampling interval. The span is validated when a reference membrane of a known density is automatically inserted within the measurement path.



### Features

- Long Term Unattended Operation
- Low Operating Costs
- User-Friendly Interface
- Selectable Measurement Ranges
- Comprehensive Diagnostics
- On-Board Data Logger
- Meteorological Sensor Inputs
- Automatic Zero & Span
- Regulatory Agency Approvals

### Applications

- Ambient Pollution Surveys
- Air Quality Index Reporting
- Industrial Perimeter Monitoring
- Epidemiological Studies

### Reliability

Operators of air quality monitoring networks direct significant resources to maintaining instrumentation. Technicians commonly spend the majority of their time working on particulate samplers and monitors.

Continuous PM monitoring systems do not have to be complicated in order to provide reliable data.

The BAM-1020 technique is accurate, yet remarkably straightforward. There are no valves, flow-splitters, driers or purge systems within the sample stream.

Also, BAM-1020 results are consistent regardless of seasonal or geographical factors. As such, there is no need to introduce correction factors.

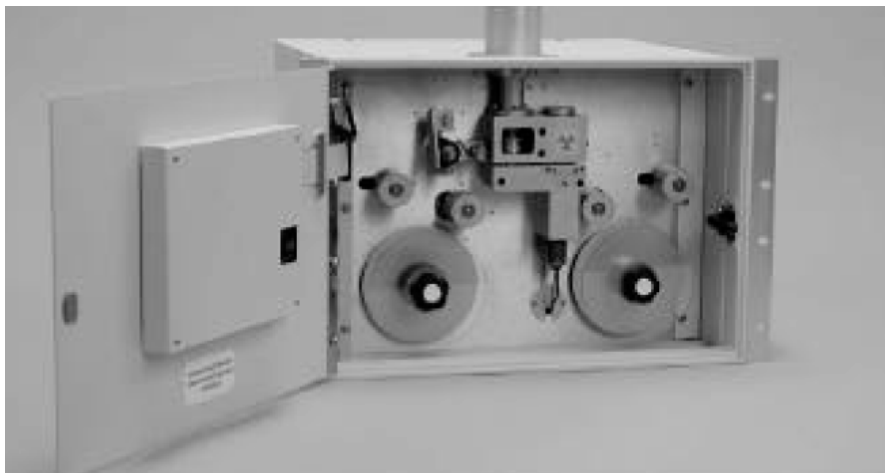
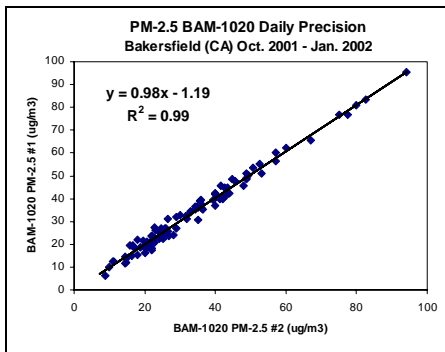
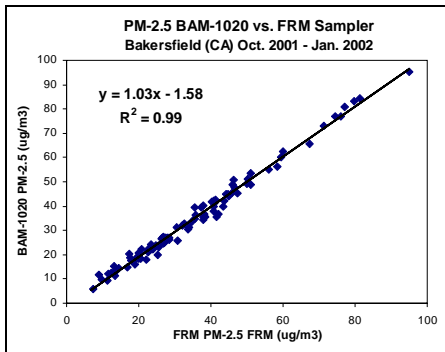


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## Accuracy

Automated, reliable and repeatable measurement of ambient particulate matter has been the goal of environmental regulators and health professionals for many years.

The BAM-1020 has time and again demonstrated excellent correlation to gravimetric reference methods, outstanding precision and reliable operation. Thorough performance evaluations have been conducted by the State of California, the EPA Environmental Technology Verification (ETV) Program, and other regulatory agencies.



## Logging and Reporting

The BAM-1020 incorporates an on-board data logger. Particulate concentration and volumetric flow results are automatically recorded. Six (6) additional channels are available for external sensors.

The internal data logger can store over 200 days worth of hourly averages.

Comprehensive diagnostics continuously evaluate operating parameters of the BAM-1020 to ensure the highest confidence and quality of data. Suspect measurements and instrument faults are automatically flagged and recorded.

The BAM-1020 provides users with a host of data and retrieval options. Measured values, averaged results, instrument status and calibration results are available from discrete analog and digital outputs, or via serial communication ports. The instrument is capable of integration with modems, printers, and data acquisition systems.

## Maintenance

The BAM-1020 is designed to provide reliable and accurate measurements over long periods of unattended operation. Service and operating costs are maintained to minimum.

The maintenance interval, when performing 24-hour measurements, is approximately 70 days.

External mass-calibration devices and special tools are not required.

## Standard Equipment

External Sample Pump  
Inlet System  
Ambient Temperature Sensor

## Options & Accessories

TSP Sampling Inlet  
PM10 Sampling Inlet  
PM2.5 Sharp Cut Cyclone  
PM1 Sharp Cut Cyclone  
Real-Time Photometer Module  
Weatherproof Enclosure  
Wind Speed and Direction Sensor  
MicroMet Plus Software  
Line Modem  
NIST-Traceable Flow Calibration Kit

## Specifications

Ranges: 0.1, 0.2, 0.25, 0.5, 1.0, 2.0, 5.0, 10.0  $\text{mg}/\text{m}^3$   
Resolution: 1.0  $\mu\text{g}/\text{m}^3$   
Accuracy: 2.0  $\mu\text{g}/\text{m}^3$  (24 hours)  
Precision: 2.0  $\mu\text{g}/\text{m}^3$   
Flow Rate: 0 to 20 lpm  
Outputs: 1 / 10 VDC or 4-20mA  
Alarms: Contact Closures (4)  
Serial Port: RS232  
Data Capacity: 200 Days  
Power: 120VAC  
Dimensions: 19" w x 12 1/4" h x 17" d  
Temp. Range: -30° to +60° C  
Consumables: Filter Tape

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