

# E-BAM



**The Met One E-BAM is a portable real-time beta gauge traceable to US-EPA requirements for automated PM<sub>2.5</sub> and PM<sub>10</sub> measurement.**

The Met One E-BAM is designed to satisfy users, regulators and those from the health community by providing truly accurate, precise, real-time measurement of fine particulate matter automatically. In addition, it is rugged, portable battery operated, and deployable in 15 minutes.

The E-BAM offers the following advanced features:

1. Accuracy and precision consistent with US-EPA requirements for Class III designation for PM<sub>2.5</sub>.
2. Real-time, accurate results without correction factors, regardless of season or geographic location.
3. True ambient sampling provides accurate measurement of semi-volatile nitrates and organic compounds.
4. Lightweight, rugged construction is easily mounted on a tripod in minutes.
5. All-weather construction allows for true ambient sampling.
6. Operates on AC or DC power. Battery and Solar options available upon request.

## Continuous Monitoring

E-BAM automates particulate measurement by continuously sampling and reporting particle concentration. Data is updated every second, and data records are updated every minute. The E-BAM eliminates the high maintenance costs and labor intensive process of outdated filter collection and manual filter weighing. With the adaptation of Beta Attenuation to ambient monitoring, the process has become simple streamlined and inexpensive.

### Data Collection

Collecting real-time or historical particulate data from the field has never been easier. Advanced communication options include cellular phone, line-of-sight radio, direct communications to your PC, and for extreme remote sites, satellite communications. E-BAM supports the full line of standard Met One Instruments options including meteorological sensors, data transfer module, and phone modem.

E-BAM data is recorded internally and may be retrieved using one of the communication options or forwarded to a third party data acquisition system. Met One Instruments' MicroMet Plus Software supports the E-BAM and provides data base and recording modules with charting as well as communications.

## Continuous Sampling

### Mobility

E-BAM is a lightweight portable instrument that operates directly in hostile environments without an exterior enclosure. E-BAM is a robust portable sampler system that is easily installed in less than 15 minutes. No other sampler matches the portability and flexibility of the E-BAM.

### Set Up

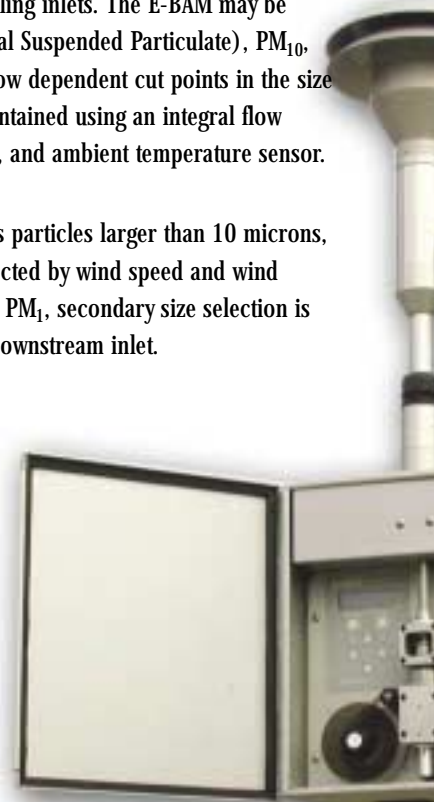
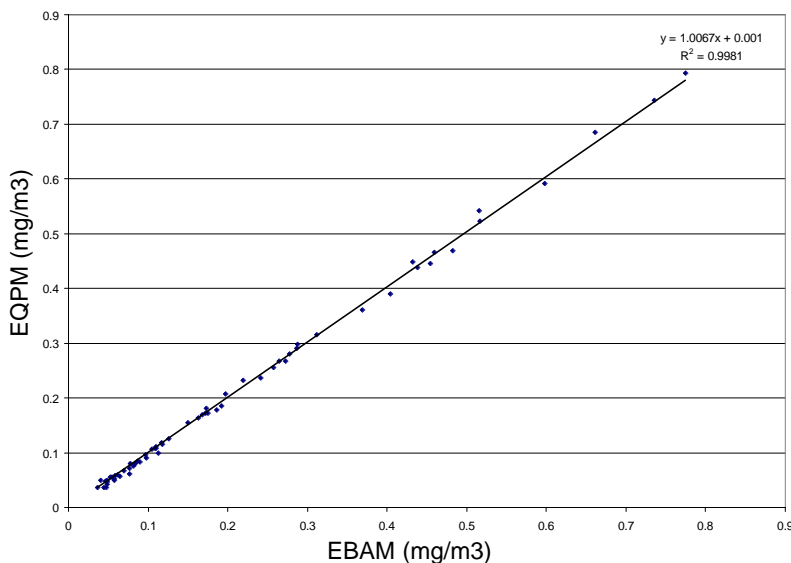
Quick setup of the E-BAM is assured with a series of prompts instructing the installer on the sequence to follow. Then the E-BAM performs a series of self-test diagnostics and alerts the installer of any corrective action. Upon completion, the E-BAM automatically places itself in normal operate mode.

### Particulate Size Selection

Size selective concentration measurements are made using a variety of sampling inlets. The E-BAM may be supplied with TSP (Total Suspended Particulate), PM<sub>10</sub>, PM<sub>2.5</sub> or PM<sub>1</sub> inlets. Flow dependent cut points in the size selective inlets are maintained using an integral flow meter, pressure sensor, and ambient temperature sensor.

The PM<sub>10</sub> inlet removes particles larger than 10 microns, and the inlet is not affected by wind speed and wind direction. For PM<sub>2.5</sub> or PM<sub>1</sub>, secondary size selection is made using a second downstream inlet.

EPA Designated Method EQPM-0798-122 VS EBAM



## Construction

The standard configuration of the E-BAM is a self-contained environmentally sealed aluminum enclosure placed on a rugged tripod. This system can be permanently placed on rooftops, near roads, at industrial sites or rapidly deployed to monitor emergency situations.

E-BAM has been specifically designed to work in hostile environments without additional protection.

### Direct Field Reporting

Collecting real time or historical particulate data from a field site has never been easier. Advanced communication options include cellular phone, Line-of-Sight-Radio, and for very remote sites, satellite communications are now available. E-BAM also supports the full line of standard Met One Instruments options, such as data transfer module, phone modem, and direct communications to a portable computer.

E-BAM data is recorded internally and may be retrieved using one of the communication options or data may be forwarded to third party data acquisition system.

MicroMet Plus Software supports the E-BAM and provides a complete communication, data base and reporting modules with charting.

## Data Reporting

### Digital, Analog and Alarm Out

The E-BAM provides both continuous digital and analog outputs. The alarm function may be set for any concentration level.

### Reporting Modes

The internal data logger can store 200 plus days of 1 hour concentration and collect data from four other external sensors at the same time. Both digital and analog outputs are included to enable connection to other data recording systems or network with other monitors.

### Easy to Operate

E-BAM is programmed to operate, at all times, except during calibration verification. Current data and historical data, are available at all times without interrupting normal E-BAM operation.

### Data Validation

The operator may select various criteria for data validation, including deviation from rolling average, high value excursions, power failure and others. If an error occurs it is entered into the "error log" with date, time and type of error.



# S T A N D A R D      S P E C I F I C A T I O N S

**E-BAM is a complete measurement system with the following standard components:**

- 4 Channel Datalogger
- Internal DC Vacuum Pump
- Real-Time Concentration
- PM<sub>10</sub> Dichot Head
- Aluminum Tripod
- Ambient Temperature Sensor
- Volumetric Flow Control
- Weatherproof Enclosure
- Filter Temperature
- Filter RH
- Filter Pressure
- Calibration Membranes

## Options and Accessories

- Flow Calibrator
- WINS Impactor
- PM<sub>2.5</sub> Sharp-Cut Cyclone
- TSP Inlet, External AC Vacuum Pump
- Power Solar Panel Array, AC Power Supply
- Sensor inputs Wind Speed Sensor,
- Wind Direction Sensor, Ambient RH, Ambient Pressure
- Communications Transfer Module, Modem, Radio Modem
- Calibration: Zero Calibration Kit, Flow Calibration Kit

## Standard Components

|                       |  |
|-----------------------|--|
| Range                 | 0 -100 mg per cubic meter                              |
| Accuracy              | 2.5 µg in 24 hour period                               |
| Measurement Cycle     | Standard @ 60 Minutes, actual sampling time 59 Minutes |
| Beta Source           | C14, less than 75 microcurie, Half life of 5730 years  |
| Detector              | Scintillation probe                                    |
| Analog Output         | 0-1V, 0-5V, 0-10V selectable, 12 bit accuracy          |
| Filter Tape           | Continuous glass fiber filter                          |
| Inlet                 | PM <sub>10</sub> impactor type                         |
| Flow Rate:            | 16.7 liters per minute, adjustable                     |
| Flow accuracy         | +/- 3% of reading, volumetric flow controlled          |
| Sample Pump           | Dual diaphragm type, internally mounted                |
| Alarm Signals         | Filter, flow, power and operation failure              |
| Input Power           | 12 Volts DC @ 36 Watts , 25°C                          |
| Alarm Contact Closure | 2 Amp @ 240 VAC  |
| Operating Temperature | -30 Deg C to 40 Deg C                                  |

## Options

|        |   |
|--------|---|
| BX-807 | PM <sub>2.5</sub> Sharp Cut Cyclone   |
| 390062 | Battery, 12VDC 100A4,   |
| 390052 | Battery Charger, 12 VDC @ 4 A / .3A hold<br>AC adapter, 100-240 VAC in, 12VDC @ 6A, |
| 591    | Wind speed sensor   |
| 590    | Wind direction sensor   |
| 592    | Temperature sensor  |
| 593    | Humidity sensor   |
| MMF    | MicroMet Plus Software  |

## Consumables      Part Number

|                   |        |
|-------------------|--------|
| Filter tape, roll | 460130 |
|-------------------|--------|



Transfer Module



Wind Speed Sensor



Solar Power



# Met One Instruments

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