

E-BAM

The Met One E-BAM is a portable, real-time beta gauge which is comparable to U.S. EPA methods for $PM_{2.5}$ and PM_{10} particulate measurements. The Met One E-BAM has been built 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.



Advanced Features

- Accuracy and precision consistent with U.S. EPA requirements for Class III $PM_{2.5}$ and PM_{10} measurement.
- Real-time, accurate results without correction factors, regardless of season or geographic location.
- True ambient sampling provides accurate measurement of semi-volatile nitrates and organic compounds.
- Lightweight, rugged construction is easily mounted on a tripod in minutes.
- All-weather construction allows for true ambient sampling.
- Operates on AC or DC power. Battery and Solar options available upon request.

Continuous Monitoring

The E-BAM automates particulate measurement by continuously sampling and reporting concentration data. Data records are updated every minute. E-BAM eliminates the old process of filter collection and manual filter weighing, and eliminates the need for more expensive, high maintenance instruments. Today, with the adaptation of Beta Attenuation to ambient monitoring this process became simple, streamlined, and inexpensive.

About Accuracy

Real-time accurate, reliable, and repeatable measurement of ambient fine particulate matter has been the elusive goal of environmental regulators and health professionals for many years. Met One Instruments has developed advanced particulate monitoring instrumentation which is reliable, and is easy to operate. It will also automatically report results in near real time,

eliminating the need for high levels of human intervention. Because sampling occurs under true ambient conditions semi-volatile organic compounds and nitrates are easily detected thereby avoiding under measurement.

Continuous Sampling

E-BAM is a lightweight portable instrument that operates directly in hostile environments without an exterior enclosure. E-BAM is a very 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-10, PM 2.5 or PM 1 inlets. Flow dependent cut points in the size selective inlets are maintained using integral flow meter, pressure sensor and ambient temperature sensor. The PM-10 inlet removes particles larger than 10 microns, the inlet is not affected by wind speed and wind direction. For PM 2.5 or PM 1 secondary size selection is made using a second downstream inlet.

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- 'represents Environment Proof instrument, 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 options, such as 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. Comet data retrieved software is included.

Digital, Analog and Alarm Outputs

The E-BAM provides both continuous digital and analog outputs. Analog output is selectable to several full-scale voltages. Digital output is supplied as RS-232.

Reporting Modes

The internal data logger can store up over 182 days of concentration data at one hour sample times, and collect data from eight other measurements at the same time! Both digital and analog outputs are included to enable users to connect to other data recording systems.

Easy to Operate

E-BAM has been programmed to operate at all times, except during calibration verification. Current data, historical data, and status information 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.

Specifications

Range:	0 – 65 mg per cubic meter
Accuracy:	2.5 µg or 10% in 24 hour period
Measurement Cycle:	Hourly measurements with 1, 5, 10, 15, or 30 min real-time averages
Beta Source:	C14, less than 75 microcurie, Half life of 5730 years
Detector:	Scintillation probe
Analog Output:	0-1V, 0-2.5v, 0-5V, selectable hourly or real-time output
Filter Tape:	Continuous glass fiber filter
Inlet:	Compatible with EPA PM ₁₀ and PM _{2.5} inlets
Flow Rate:	16.7 liters per minute, adjustable
Flow Accuracy:	+/- 2% of reading, volumetric flow controlled
Sample Pump:	Dual diaphragm type, DC powered, 4000 hr rating
Alarm Signals:	Filter, flow, power and operation failure
Input Power:	12 Volts DC @ 48 Watts max
Alarm Contact Closure:	2 Amp @ 240 VAC max
Operating Temperature:	-30 Deg C to 50 Deg C
Enclosure:	41 cm x 36 cm x 20 cm, 13kg

Standard Components

E-BAM is a complete measurement system it comes with the following:

8 Channel Datalogger	Internal DC Vacuum Pump Standard
Real-Time Concentration	PM10 Inlet
Aluminum Tripod	Ambient Temperature Sensor
Volumetric Flow Control	Weatherproof Enclosure
Filter Temperature Sensor	Filter RH Sensor
Filter Pressure Sensor	Calibration Membrane

Options and Accessories

BX-302 Zero Calibration Kit	EX-034 Wind speed and direction sensor
BX-305 Leak check valve	EX-121 AC Power supply, 100-240 VAC, 12 VDC output
BX-307 Flow Calibrator	EX-593 Ambient RH Sensor
BX-308 PM2.5 Sharp-Cut Cyclone	EX-996 Phone modem kit
BX-803 TSP Inlet	EX-911 Cell modem kit
460130 Filter tape, roll	9425 Wall mount bracket
Airsis Satellite modem kit	External AC Vacuum Pump
MMP MicroMet Plus	Solar Panel Array
Software	

