

## E-SAMPLER

The E-SAMPLER is the most feature-packed light-scatter Aerosol Monitor available. Whatever your monitoring needs, the E-sampler will provide accurate, dependable and relevant data.



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### Dual Technology

The E-SAMPLER is a dual technology instrument that combines the unequalled real-time measurement of light scatter with the accuracy standard of filter methods. The simple filter loading process testifies to the seamless blending of both technologies. Filters can be extracted and replaced in less than one minute and filter medium can be selected based on laboratory analysis. Particulate loading on the filter does not reduce performance due to the MetOne actual flow control protocol. Ambient temperature and pressure are measured and actual flow is calculated and controlled by the E-SAMPLER microprocessor independent of filter loading change.

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### Operation

The E-SAMPLER is rugged, portable and easy to use. The all aluminum enclosure is not only rugged but provides electronic stability by filtering potential RF interference. Set-up is a snap with the quick connect system which works with the EX-905 tripod. For other mounting applications, holes are provided to fasten to any structure. Simply turning the monitor on will start a sample using the most recent parameters. The unit will continue to operate until user intervention or battery failure. Auto-Zero and Auto-Span ensure that the data collected will be of the highest quality. Both Zero and Span can be operated manually or individually programmed at varying time bases (15 minutes to 24 hours). The E-SAMPLER can also be configured for start/stop times, recording periods, averaging time and other parameters.

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### Data Collection and Software

Optional MicroMet Plus is a complete communications, data collection and data reporting tool. This software supports modem, radio, direct connection and generates summary reports as well

as recordings and charts. Comet software included which provides easy to use terminal access to E-Sampler data.

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## Principle

The E-SAMPLER provides real-time particulate measurement through near-forward light scattering. An internal rotary vane pump draws air at 2 LPM into the sensing chamber where it passes through visible laser light. Aerosols in the air scatter light in proportion to the particulate load in the air. Scattered light is collected by precise glass optics and focused on a PIN diode. Rugged state of the art electronics measure the intensity of the focused light and output a signal to the CPU. The output is linear to concentrations greater than 65,000 ug/m<sup>3</sup>. Every E-SAMPLER is factory

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## Maintenance

Each E-SAMPLER has two internal filters (not the 47mm Analysis Filter) to protect sensitive optics and prevent damage to the flow components. Both filters are accessible from the front panel. Coin slotsenable these filters to be removed and checked or replaced without any tools. Filter life for both will exceed 1 year in the harshest of conditions. All E-SAMPLERS have purge air from the internal filters that continually curtain the optics. This purge air protection allows the E-SAMPLER to be used in adverse environments without performance degradation. Even in harsh conditions the E-SAMPLER will operate to specifications for 2 years without need of recalibration.

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## Features

- Programmable Auto-Zero
  - Programmable Auto-Span
  - Auto-ranging (1 to 65000 µm/m<sup>3</sup>)
  - Automatic Flow Control Protocol
  - Internal Battery (30 Hours Operation without heater & 10 Hours with heater.)
  - Laser-Diode Precise Optical Engine
  - Integral 47mm Analysis Filter
  - Ambient Pressure and Temperature
  - Internal Datalogger
  - PM<sub>10</sub>, PM<sub>2.5</sub>, PM<sub>1</sub>, TSP Monitoring
  - Aluminum Weatherproof Enclosure
  - Purge-Air protected Optics
  - Completely Self-Contained
  - No Tools Filter Replacement
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## Applications

- Ambient Air Monitoring
- Remediation Site Perimeter Monitoring
- Indoor Air Quality Monitoring
- Source Monitoring
- Visibility Monitoring
- Mobile Monitoring

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## Specifications

Concentration Ranges (Auto-ranging):	-0.5, 0-1, 0-10 0-65 mg/m <sup>3</sup>
Laser:	670 nm, 5 mW
Sensitivity:	0.001mg/m <sup>3</sup>
Sample Period:	1 sec
Sample Flow Rate:	2 LPM
Pump Type:	Diaphragm 10,000 hr
Accuracy:	8% of NIOSH 0600
Precision:	0.003 mg/m <sup>3</sup> or 2% reading
Particle Size Sensitivity Range:	0.1-100 micron
Long term Stability:	5% reading
Sensor Type:	Forward Light Scatter
Average Period:	1 – 60 minutes
Display:	4X20 LCD
Internal Battery (Optional):	12 VDC 12 Amp-Hr, lead acid
Power Consumption:	350mA (no heater), 1.1 A (w/heater)
Internal Battery Operation, no heater:	>30 Hours
Internal Battery Operation, heater:	10 Hours
Size:	10.5 (267) X 9.25 (235) X 5.7 (145) inches (mm)
MOI Service Period:	2 yrs
Programmable Auto-Zero:	15min to 24 hours
Programmable Auto-Span:	15min to 24 hours
Traceable Testing:	Gravimetric
Sample Line Heater:	Configurable RH Controlled
Outputs:	Analog 0-1,0-2.5, 0-5VDC, RS232
Data Storage Capacity:	12000 Records
Temperature Compensation:	Standard
Temperature Range:	-30C to +50C

RH Measurement:	Internal
Ambient Temperature:	-30C to +50C
Ambient Pressure:	1040 to 600 mbars
Alarm:	Contact Closure
Available Cut Points:	TSP, PM10, PM2.5, PM1

### **Standard Equipment**

Universal Voltage Power Supply

Battery Charger Internal

47 mm Filter Holder

Comet Software

TSP Inlet

Inlet Heater

Digital Output Cable

Instruction Manual

### **Options**

PM10, PM2.5, PM1 Sharp-Cut Cyclone

Low Temperature Option, -40C to +50C

Aluminum Tripod

MicroMet Software

Radio Modem

Satellite

Wind Speed/Direction Sensor

Ambient RH

External Battery Cable

Battery