DORGEAN
Beijing Dorgean Electronic Technology Co.,Ltd

Instrument Expert
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Met One Instruments,Inc.

E-Sampler Dual Ambient Monitor/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.

The E-SAMPLER is a dual technology instrument that combines the unequaled realtime 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. Filter medium can be selected based on laboratory analysis requirements.

Particulate loading on the filter does not reduce performance due to the Met One 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.

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^3. Every E-SAMPLER is factory calibrated using polystyrene latex spheres of known index of refraction and diameter at multiple points to validate linearity.

Features:

- Programmable Auto-Zero
- Programmable Auto-Span
- Auto-ranging (1 to 65000 μm/m^3)
- 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 Data-logger
- PM_{10}, $PM_{2.5}$, PM_1, TSP Monitoring
- Aluminum Weatherproof Enclosure
- Purge-Air protected Optics
- Completely Self-Contained
- No Tools Filter Replacement

Applications:

- Ambient Air Monitoring
- Remediation Site Perimeter Monitoring
- Indoor Air Quality Monitoring

- Source Monitoring
- Visibility Monitoring
- Mobile Monitoring

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Specifications

E-Sampler Dual Ambient Monitor/Sampler

Measurement Principles:	Light Scatter and 47mm low flow gravimetric filter sampler.
Available Cut Points:	TSP Inlet Standard. PM_{10}, $PM_{2.5}$, and PM_1 sharp-cut cyclone inlets available.
Measurement Range:	0 to 65 mg/m^3 (0 to 65,530 µg/m^3) dynamic range. 16 bit digital range.
Nephelometer Accuracy:	± 10% to gravimetric method typical when K-factored to local particulate type.
Gravimetric Accuracy:	± 8% of NIOSH 0600.
Precision:	Greater of 3 µg/m^3 or 2%.
Data Storage Resolution:	1 µg/m^3
Data Storage Intervals:	User-Selectable 1, 5, 10, 15, 30, or 60 minute averages.
Nephelometer Interval:	1-second measurements, available on analog output and display.
Sample Cycles:	Continuous operation or programmable scheduled sample runs.
Particle Size Sensitivity:	0.1 to 100 micron. Optimal sensitivity 0.5 to 10 micron particles.
Laser Type:	Diode Laser, 5 mW, 670nm. Visible red.
Long Term Stability:	5% with clean optics.
Flow Rate:	2.0 liters/minute ± 0.1 lpm. Actual volumetric flow.
Pump Type:	10,000 hour brushless diaphragm sample pump and secondary purge pump.
Gravimetric Filter Type:	47mm disc filters (not included). Accepts standard FRM filter holder cartridges.
Automatic Zero and Span:	User-selectable 15 min, 1 hour, 2 hour, 12 hour, or 24 hour intervals. 2.8 min cycle.
Internal Battery:	12V, 12 Amp-Hour. Yuasa NP12-12 or equivalent, Optional lead acid battery.
Internal Battery Run Time:	Up to 30 hours with inlet heater off. Up to 10 hours with inlet heater on.
Power Supply:	Universal 100-240 VAC input, 15 VDC output power supply included. Compatible with solar power kits or external batteries using optional DC power cable.
Power Consumption:	1.1 amps @ 12 VDC (15 Watts) max continuous draw, running with inlet heater on. 0.35 amps (4.2 Watts) running with inlet heater off.
Operating Temperature:	0 to +50°C . (Ambient Temperature Sensor Range -30 to +50°C).
Barometric Pressure:	60,000 to 104,000 Pascal pressure sensor range.
Ambient Humidity Range:	0 to 90% RH, non-condensing.
Humidity Control:	Automatic 10 Watt inlet heater module controlled to sample RH setpoint. Sample RH sensor standard. Optional EX-593 ambient RH sensor available.
Approvals:	CE, ISO-9001. Designed to agree with EPA Class I and Class III FRM/FEM particulate samplers and monitors. Not an EPA-designated equivalent method.
User Interface:	Menu-driven interface with 4x20 character LCD display and dynamic keypad.
Analog Voltage Output:	0-1, 0-2.5, or 0-5 volt DC output. User-set range with 1-second real-time output.
Serial Interface:	RS-232 duplex serial port for PC, datalogger, or modem communications.
Alarm Contact Closure:	Normally closed contact closure relay output. Contact rating 0.5A @ 100V DC max.
Compatible Software:	Comet™ (included), Air Plus™, terminal programs such as HyperTerminal®
Alarm Reporting:	Available through serial port data files, display, and relay output.
Memory:	4369 data logger records (182 days @ 1 record/hr, 3 days @ 1 record/min).
Factory Service Interval:	24 Months typical, under continuous use in normal ambient air.
Mounting Options:	Pole or wall mount bracket standard. Optional EX-905 tripod recommended.
Unit Weight:	6.4 kg (14 lbs) without tripod, battery, or optional accessories.
Unit Dimensions:	65cm high, 27cm wide, 16.5cm deep. (25.5" x 10.5" x 6.5"). With inlet assembly

Specifications are subject to change at any time.

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