CAPS Multi-λ PM_{ex} Monitor

Accurate and Precise Continuous Monitoring of Particle Optical Extinction.

**APPLICATIONS**

- Visible to Near-IR measurement of particle optical extinction using patented Cavity Attenuated Phase Shift technology.
- Measurement of ambient optical extinctions at the 1 Mm$^{-1}$ level.
- Climate Change Research Optical Properties Closure.
- Roadside Monitoring.
- Combustion Plume Analysis.
- Aircraft Engine Exhaust Monitoring.

**ADVANTAGES**

- Choice of up to 4 of 6 Wavelengths:
  - Far Blue (405 nm)
  - Blue (450 nm)
  - Green (525 nm)
  - Red (630 nm)
  - Far Red (660 nm)
  - Near IR (780 nm)
- No calibration required.
- Autonomous Operation: No Zero Air. Automated Background Subtraction.
- Linear Response (0 - 4000 Mm$^{-1}$).
- Maintenance-Free.

**APPLICATIONS**

Measured particle extinction at 630 nm in Pasadena, CA during the CalNex campaign shown as 1 hour average values. Note the diurnal variation in extinction levels.

Measured particle extinction at 532 nm outside of Estes Park, CO shown as 1 minute averages. Note the low levels of ambient particle extinction. The spikes are particulate emissions from passing vehicles.
CAPS Multi-\(\lambda\) PM\(_{\text{ex}}\) Monitor

**SPECIFICATIONS:**

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Specification</th>
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<tbody>
<tr>
<td>Sensitivity (S/N =3)</td>
<td>2.5 (\text{Mm}^{-1}) (1 s), 0.25 (\text{Mm}^{-1}) (60 s) all channels</td>
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<td>Response Time (10-90%)</td>
<td>&lt; 2 s</td>
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<td>Sample Flow</td>
<td>0.85 (\text{l min}^{-1}) (volumetric flow) per measurement cell</td>
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<td>Operating Pressure</td>
<td>Ambient</td>
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<td>Materials Exposed to Sample</td>
<td>Conductive Urethane, Stainless Steel, Conductive Silicone, and Aluminum</td>
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<td>Data Output</td>
<td>RS-232, USB, Ethernet (Data Acquisition Program Included) On-board Data Storage (10 yrs) Front Panel Display</td>
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<tr>
<td>Size/Weight</td>
<td>Rack mount, 19” x 24” x 12.25”, 30 lbs. [61 cm x 43 cm x 31 cm, 15 kg]</td>
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<td>Electric Power</td>
<td>&lt;100W; 100-250 VAC (50-60 Hz)</td>
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![Graphs showing intensity vs. wavelength for different wavelengths]

**REFERENCES**


