



CAPS PM_{ex} Monitor

*Accurate and Precise
Continuous Monitoring of
Particle Optical Extinction.*



APPLICATIONS

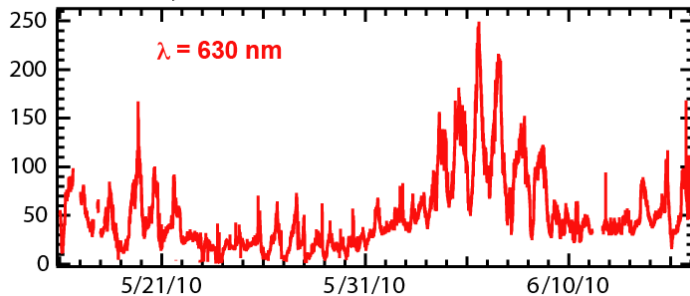
- Visible (red, green or blue) measurement of particle optical extinction using patented Cavity Attenuated Phase Shift technology.
- Measurement of ambient optical extinctions at the 1 Mm⁻¹ level.
- Climate Change Research Optical Properties Closure.
- Roadside Monitoring.
- Combustion Plume Analysis.
- Aircraft Engine Exhaust Monitoring.

ADVANTAGES

- Choice of 1 of 5 Wavelengths:

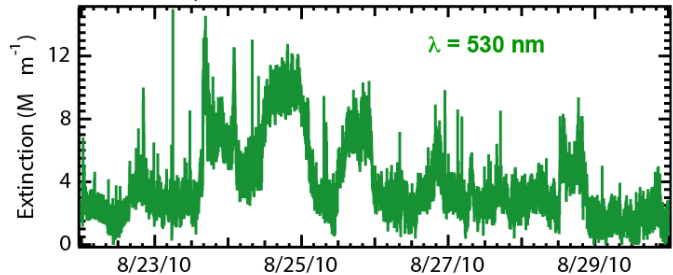
Far Blue	(405 nm)
Blue	(450 nm)
Green	(525 nm)
Red	(630 nm)
Far Red	(660 nm)
Near IR	(780 nm)
- No calibration required.
- Autonomous Operation:
No Zero Air.
Automated Background Subtraction.
- Linear Response (0 - 4000 Mm⁻¹).
- Maintenance-Free.

Pasadena, CA



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.

Estes Park, CO



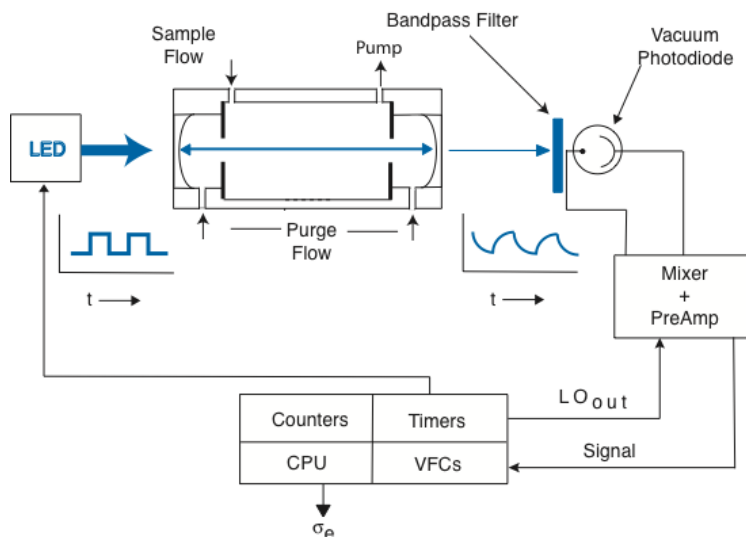
Measured particle extinction at 532 nm outside of Estes Park, CO shown as 1 minute averages. Note the low levels of ambient particle extinction. The spikes are particulate emissions from passing vehicles.



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SPECIFICATIONS:

Sensitivity (S/N =3):	2.5 Mm ⁻¹ (1 s), 0.25 Mm ⁻¹ (60 s)
Response Time (10-90%):	< 2 s
Sample Flow:	0.85 l min ⁻¹ (volumetric flow)
Operating Pressure:	Ambient
Materials Exposed to Sample:	Conductive Urethane, Stainless Steel, Conductive Silicone, and Aluminum
Data Output:	RS-232, USB, Ethernet (Data Acquisition Program Included) On-board Data Storage (10 yrs) Front Panel Display
Size/Weight:	Rack mount, 19" x 24" x 9.06", 25 lbs. [61 cm x 43 cm x 23 cm, 12 kg]
Electric Power:	50 W; 100-250 VAC (50-60 Hz)



REFERENCES

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"Intercomparison of a Cavity Attenuated Phase Shift-based extinction monitor (CAPS PM_{ex}) with an integrating nephelometer and a filter-based absorption monitor", A. Petzold, T. Onasch, P. Kebabian and A. Freedman, *Atmos. Meas. Tech.*, 6:1141–1151 (2013).