

IMAP

AirPhoton Inverse Multi-Angle Polarimeter with Polarization

The IMAP measures polarized scattered light from a laser at 8 discrete angles ranging from 5 to 170 degrees. This is done via a pair of optical fibers positioned at each of these angles. The fibers transmit the scattered light from the sample chamber to a camera module that collects the light for processing and analysis



Capabilities

- Complete size distribution measurement every 5min.
- Particle mass
- Full phase function
- The real refractive index of the particles
- Sphericity factor

Suggested use

We suggest IMAP or in-depth understanding of particulate properties. Given its unique combination of aerodynamic and optical sizing can be used to connect satellite and ground based measurements for air quality research.

Specifications

- Instrument size: 86 cm x 38 cm x 32cm
- Inlet height: 110 cm
- Flow rate: 2 to 17 liters per minute (typical)
- Data: Saved to internal storage
- Calibration: Operational daily provided by internal clean air reference.
- Gas calibration: CO₂ and clean air every 3-6 months depending on operating conditions.
- Power: Mains AC power. 120 or 240-Volt systems (50 and 60Hz). 600 W maximum load. A 5-Amp circuit breaker is included that also acts as the on-off switch.
- Angular ranges measured: 8 View angles centered at 5°, 25.7°, 51.4°, 77.1°, 102.8°, 128.6°, 154.3° and 170°.
- Instantaneous field of view < 7.5°.
- Wavelengths: (3) 470 nm, 529 nm and 621 nm.
- Polarization orientations: 2 Parallel and perpendicular to the scattering plane.
- Size measurements: 4 size bins ranging from PM₁ to PM₁₀.