

IN102X | AirPhoton Extended Range Size Scanning Integrating Nephelometer



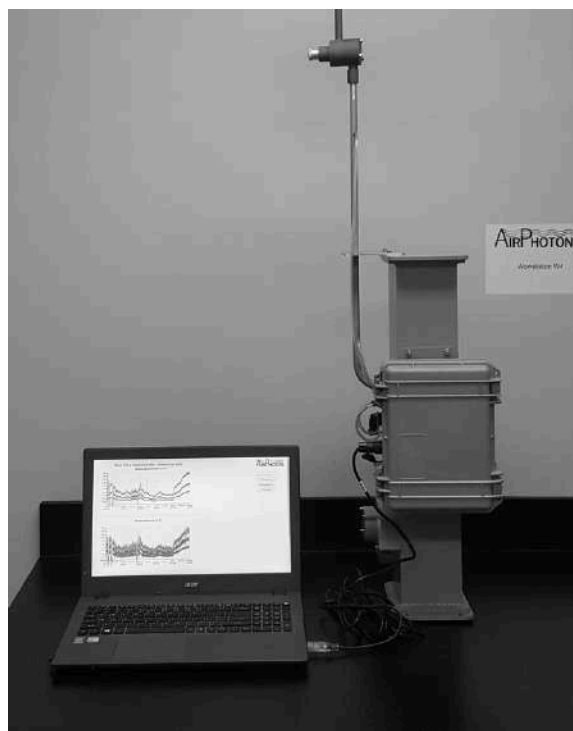
AirPhoton Nephelometers provide real-time measurements of aerosol optical properties. We achieve a high degree of sensitivity due to a large angular range and design features which minimize stray light. We produce several different models of nephelometers. Our more advanced models allow for data collection at multiple size cuts.

All of them are weather hardened for field deployment and can operate over a large range of heat and humidity. They are deployed globally by both the SPARTAN network and NASA's MAIA mission.

The different models are described in the following pages. All models can be used with our communications module allowing for internet or cell network control and monitoring of the instrument.

Also note that our philosophy is to collect and measure particles under ambient conditions. We can, at additional cost and upon request, provide a nafion tube system to dry the aerosols.

When combined with the GRASP retrieval algorithm, our nephelometers provide a wealth of information beyond what is possible with a standard nephelometer – e.g. retrieving aerosol size distribution, concentration or refractive index –.



AirPhoton instruments are deployed globally by:



Jet Propulsion Laboratory
California Institute of Technology



Dual pressure taps in inlet to provide accurate flow monitoring

The IN102X extended range nephelometer is built to the same standards as our IN102 instrument. In addition, it has the capability to extend its measurement range down to a separate size bin for PM1. The additional data range allows us to derive a full optical particle size distribution in about 30 – 40 minutes.

Capabilities

- Forward and Back Scatter measurements
- Three wavelengths
- High Speed fan
- Feedback Flow control system
- Multiple Size Cuts
- Determines Size distribution

Suggested use

High precision measurements for various aerodynamic size cut-offs under all conditions for air quality & health and climate applications with ability to obtain size distribution.

Specifications

- Dimensions: 9" x 10" x 24" / 22.9 x 25.4 x 61 cm
- Mass: 6.8 kg
- Operating temperature: -30 to +45°C
- Wavelengths: 450, 532, and 632 nm
- Angular range: 7 to 90° ; 90 to 170°
- Full scattering = forward + back scattering
- Standard range: 0.0-3,000 Mm⁻¹
- Extended range: 20,000 Mm⁻¹ (upon request)
- Lower detectable limit:
 - <0.15 Mm⁻¹ (at 60 sec AVG)
 - < 0.06 Mm⁻¹ for Backscattering (60 sec AVG)
- Time resolution: 15 sec standard – 1 sec minimum
- Sensitivity: < 0.1 Mm⁻¹
- Intensity: < 0.01 mM⁻¹
- Clean air reference option provides automatic zero for span calibration
- Data Interfaces: 4GB SD card (possible up to 32GB), RS 485, and USB