

THE AEROEXPLORER

Particulate Sampler

Robust design for remote operation under harsh conditions
Versatile, programmable sampling in multiple filters



**Used around the globe by NASA's MAIA Mission
and the SPARTAN Particulate Matter Network**

Simultaneous or sequential sampling of $PM_{2.5}$ and PM_{10}

Ideal for source apportionment or fenceline monitoring

Versatile Automated Particle Sampling

- Particles are collected on filters in an 8-filter cartridge
- Sample collection is completely programmable by day and time of day
- High or low volume sampling
- Low volume sampling can be battery and/or solar panel powered for remote deployment with little to no environmental impact

Sampler Configurations

Single Inlet System

Collect PM 2.5 or PM 10

Select size and sampling times using a programmable script.



Dual Inlet System

Collect PM 2.5 and PM 10 simultaneously



Single Pump for remote deployment using solar and/or battery power

Dual Pump for more robust collection using line power



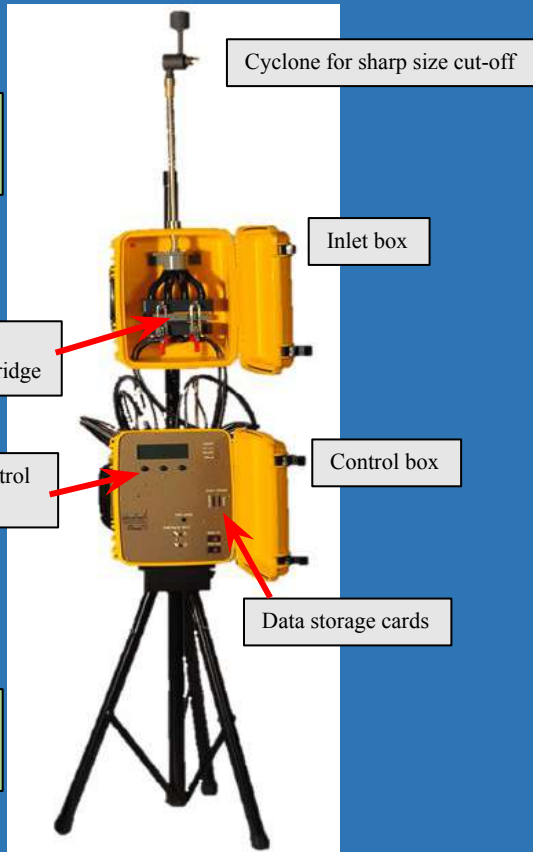
New Features Available This Fall

- Sampling by wind direction

- Trace gas sampling configuration

AirPhoton AeroExplorer Sampling Station Instrument Specifications

Deployed globally by the
SPARTAN Network
www.spartan-network.org



Ground support instrument
for the NASA JPL
MAIA satellite mission

Cyclone for sharp size cut-off

Inlet box

FC10
Filter cartridge

User control
buttons

Control box

Data storage cards

Single Inlet Box Specifications (SS5i)

- Box dimensions: 12.5" x 15" x 9"
- Weight: 6 kg
- Installed height: 40" but varies per configuration
- Control box option: SS5e, SS5e7-1
- Holds FC10, 8-slot filter cartridge
- Flow rate: 1.5-7 lpm, set to control particle size
- Inlet size cut-off options: PM10, PM4, P2.5, or PM1

Control Box Specifications (SS5e)

- Box dimensions: 12.5" x 18" x 9"
- Weight: 5.3 kg
- Low and high volume sampling volume options
- Power inputs: 110/220 VAC 50/60Hz
- Auxiliary power input: nominal 12VDC.
- Solar and battery power compatible.
- User sets sampling protocols with intuitive button commands
- Controls on/off pump and advance to next filter slot as function of minutes, hours or days
- Data stored on removable memory cards with automatic backups

Please inquire for information on remote control and data
download capabilities

AeroExplorer Sampling Station

The AirPhoton AeroExplorer Automated Filter Sampling Station is a fully programmable system that collects particulate matter on filters for subsequent analysis. Consisting of an Inlet/Filter unit and a Control box, the station is equipped with an 8-slot filter cartridge. The programmable capability allows flexibility when designing sampling cycles, moving collection from filter slot to filter slot or turning collection on and off at specified times. Filter cartridges are portable and can be prepared in the lab and mailed to the sampling station site.

The Single Inlet/Filter unit basic configuration (SS5i) employs a cyclone inlet which selects particle sizes based on the inlet flow rate. The pump can be programmed to automatically toggle between two flow rates, sending different size particles to different designated filters, or the flow rate can be adjusted by a manual valve in the front panel of the instrument. Particles can be collected on single stage filters or with no change in hardware or software can be further separated into two stage filter collection to fine and coarse fractions. The most common configuration allows for collection of PM 2.5 and PM 10. The Dual Inlet/Filter station uses two different cyclones running at different flow rates to collect particles of two different sizes simultaneously.

The Control box (SS5e) offers 3 analog inputs for external devices and 1 digital port for communication with other devices, such as the AirPhoton integrating nephelometer, weathervanes or particle counters to provide a variety of control options for sampling. Data is stored in removable memory cards, and automatically backed-up to an additional card.

The Inlet/Filter units and the Control Box are both enclosed in environmentally isolated cases, ready for outdoor deployment in rugged conditions. Power input options include: 110/220 VAC 50/60Hz and nominal 12VDC. The design is also compatible with power supplied by solar panels.

The unit can be controlled remotely by the AirPhoton communications module to continually modify the sampling protocol after deployment.

Autonomous particle sampling.

Pump turns on/off and sampling advances to next filter slot, automatically, as function of minutes, hours or days. All directed by operator-initiated programs, input with intuitive button controls or script command uploads.