

Ultrasonic Personal Air Sampler (UPAS) v2.1

PM sampling + GPS + Motion



(Actual device size)

The UPAS is a compact filter sampler built around ultrasonic pumping technology. The UPAS is smaller, lighter, quieter, more affordable, easier to use, and more robust than conventional air samplers.

Minimal ergonomic burden: The UPAS is silent, small, and light enough to be worn in a person's breathing zone. Interchangeable size-selective inlets and filter cartridges integrate directly with the pump, so there's no need for cumbersome tubing or tape!

Sampling made simple: It's easy to set up the UPAS using our iOS or Android mobile application.

Reliable data: An active sample flow control system maintains the target volumetric flow rate even as environmental conditions change and the pressure drop across the filter increases. The UPAS logs detailed operational data automatically to facilitate robust sample quality assurance.

"I like the UPAS because it is easier to use."

-Dr. Robert Blount, University of Iowa

HIGHLIGHTS

| |
|----------------------------------------------|
| Integrated size-selective PM inlets |
| Wireless setup via mobile application |
| Active, accurate sample flow control |
| Small and quiet; minimal ergonomic burden |
| Comprehensive, time-resolved data logging |
| GPS tracking |
| Long battery endurance for extended sampling |

SPECIFICATIONS

| | |
|-------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Exterior size | 128 mm × 70 mm × 23 mm |
| Weight | 200 g (without inlet or filter cartridge) |
| Noise | < 45 dB |
| Flow rate range | 1.0 to 2.0 L min ⁻¹ ± 4% (actively controlled) |
| Size-selective inlets (per relevant EPA, ACGIH, and ISO criteria) | PM _{2.5} , 1 L min ⁻¹ PM _{2.5} , 2 L min ⁻¹ Respirable, 2 L min ⁻¹ PM ₁₀ / Thoracic, 2 L min ⁻¹ |
| Filter size | 37 mm (default) or 25 mm; quick-change filter cartridges for easy in-field handling |
| Battery type | Li-Ion, 24 W-h |
| Battery life | 20 to 48 h, depending on filter media and sample settings; extendable via external battery or line power. |
| On-board sensors monitor: | <ul style="list-style-type: none">• Sample flow rate• Air temperature/pressure/relative humidity• Differential pressure across the sample filter• GPS location of UPAS (can be deactivated)• Light (Lux, IR, UV, UV index; relative levels only)• Motion/acceleration (linear & angular, 6 DOF) |



**ACCESS SENSOR
TECHNOLOGIES**

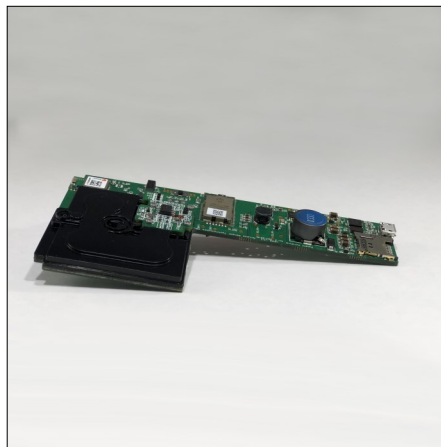
Sampling made simple.

Revision 1.4, June 2025

SIMPLE FILTER REPLACEMENT



SIMPLE INTEGRATED DESIGN



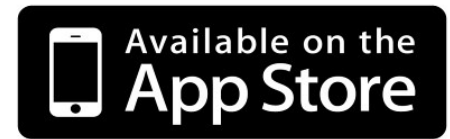
SIMPLE FORM FACTOR



WEARABLE FOR ALL AGES



INDOOR ENVIRONMENT



The UPAS has been laboratory- and field-tested alongside gold standards like the Personal Environmental Monitor (PEM), Harvard Impactor, and Mesa Labs/BGI Triplex Cyclone, and the Personal Modular Impactor (PMI). For additional validation data, see:

Volckens, J., et al. Indoor Air, 2017, <https://doi.org/10.1111/ina.12318>

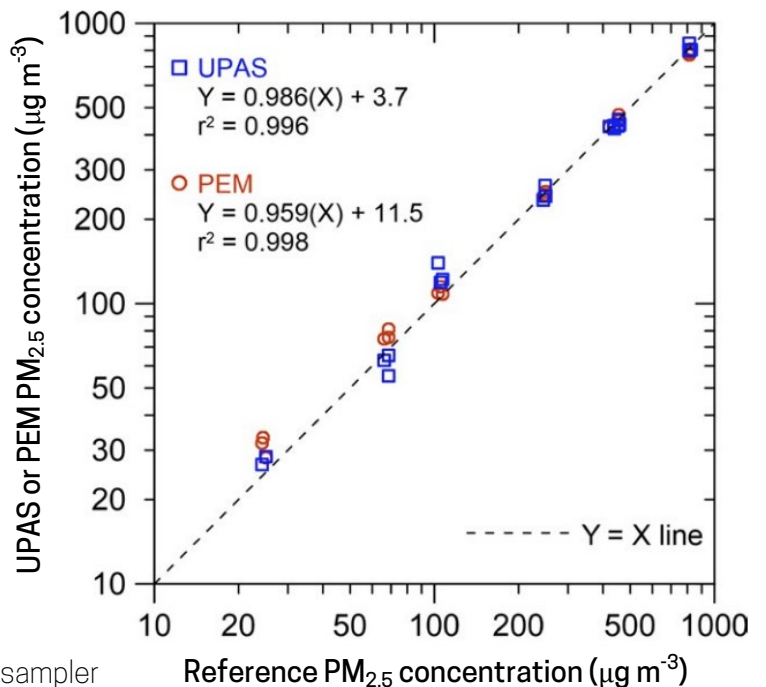
Arku, R.E., et al. Environment International, 2018, <https://doi.org/10.1016/j.envint.2018.02.033>

Pillariseti, A., et al. Environment International, 2019, <https://doi.org/10.1016/j.envint.2018.11.014>

Burrowes, V.J., et al. Indoor Air, <https://doi.org/10.1111/ina.12638>

Li, X., et al. Aerosol Science & Technology, 2024, <https://doi.org/10.1080/02786826.2024.2415481>

Right: UPAS performance relative to a conventional sampler (URG-2000-30EGN-A cyclone & URG-2000-30FG filter holder).



Access Sensor Technologies

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