

Ultrasonic Personal Air Sampler (UPAS) v2.0

Quiet, lightweight, wearable filter sampler



(Actual device size)

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

Access Sensor Technologies' Ultrasonic Personal Air Sampler (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 directly in a person's breathing zone. The interchangeable size-selective sample 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 and download sample data to your mobile device using our iOS or Android 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 sample filter increases. The UPAS logs a comprehensive set of operational data to facilitate robust sample quality assurance.

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

-Dr. Robert Blount, University of Iowa

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• GPS location of UPAS (can be deactivated)• Differential pressure across the sample filter



**ACCESS SENSOR
TECHNOLOGIES**

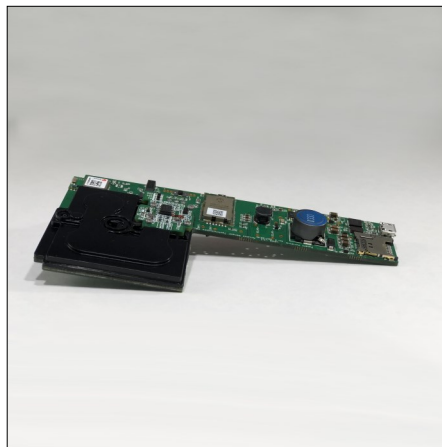
Sampling made simple.

Revision 1.5, July 2024

SIMPLE FILTER REPLACEMENT



SIMPLE INTEGRATED DESIGN



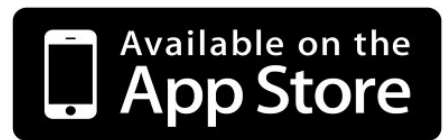
SIMPLE FORM FACTOR



WEARABLE FOR ALL AGES



INDOOR ENVIRONMENT

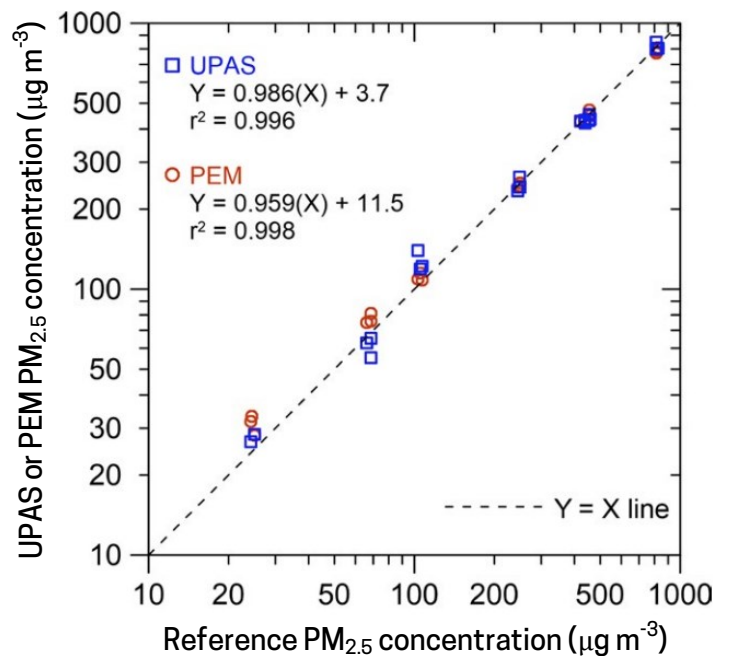


The UPAS has been laboratory- and field-tested alongside gold standards like the Personal Environmental Monitor (PEM), the Harvard Impactor, and the Mesa Labs/BGI Triplex Cyclone (see figure on right). For additional validation data, see:

Volckens, J., et al. Development and evaluation of an ultrasonic personal aerosol sampler, *Indoor Air*, 2017, <https://doi.org/10.1111/ina.12318>

Arku, R.E., et al. Characterizing exposure to household air pollution within the Prospective Urban Rural Epidemiology (PURE) study, *Environment International*, 2018, <https://doi.org/10.1016/j.envint.2018.02.033>

Pillariseti, A., et al. Measuring personal exposure to fine particulate matter (PM_{2.5}) among rural Honduran women: A field evaluation of the Ultrasonic Personal Aerosol Sampler (UPAS), *Environment International*, 2019, <https://doi.org/10.1016/j.envint.2018.11.014>



Performance of the UPAS relative to a conventional sampler (URG-2000-30EGN-A cyclone & URG-2000-30FG filter holder).

Access Sensor Technologies

www.accsensors.com (970) 818-7520 support@accsensors.com

320 East Vine Drive, Suite 221, Fort Collins, CO 80524