

SASS 4000 Plus High-Volume Concentrator + Wet Collection System

PLUS PRODUCTS: Combinations That Make Sense



SASS 4000 Plus: High-Volume Concentrator PLUS Wet Sample Collection

The SASS 4000 Plus combines a highly efficient, high-volume aerosol concentrator (SASS 4000) with a portable multi-stage, wetted-wall, cyclone sampler (SASS 2300) that extracts particulates and water-soluble chemical vapors from the concentrated air into a liquid phase suitable for later analysis.

The SASS 4000 continuously samples over 3500 liters/minute of ambient air. Air flows radially inward into the concentrator through a coarse square-mesh screen. This inward radial flow provides 360 degree sampling of the surrounding aerosol environment.

The primary fan and a curved air shroud are mounted above the sampler inlet section, channeling exhaust air into a vertical stream away from the inlet area.

Particulates in this air stream are transferred to a much smaller secondary air stream using patent-pending centrifugal and virtual impaction principles. The secondary flow can reach aerosol concentrations that are 4X to 15X higher than present in the incoming air, yet the velocity of this secondary aerosol concentrate flow is much lower than peak velocities in the primary circuit.

This secondary air flow is then routed, via a hose connection, into the SASS 2300 where the concentrated particulates and the vapors are extracted from sampled air and trapped in a small volume of liquid that can be removed at any time for analysis. Trace aerosol concentrations can be amplified by extending the sampling time. Our patented fluid monitoring system maintains a fixed liquid volume in the device that is independent of collection time, air temperature or relative humidity.

It is the only wet-type air sampler shown to efficiently collect virus-sized particles, and has been successfully used to detect the airborne viral pathogens that cause exotic Newcastle disease and hoof-and-mouth disease, as well as some strains of avian influenza virus. Furthermore, it is the only portable sampler technology to receive U.S. Department of Homeland Security Certification under the U.S. Safety Act of 2002.

APPLICATION AREAS

- Counter-terrorism
- Epidemiology
- Agriculture
- Food processing air quality
- Medical facility air quality



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The air sampler is microcontroller-based and can function as a stand-alone unit or connected to other sampling, detection or communication systems via RS-232 or wireless link. Reprogramming of sampler operation may be performed at any time over the RS-232 link without having to disassemble the unit.

Specifications for SASS 4000 Concentrator	
Characteristic	Description
Primary airflow:	3,600+ liters/min is sampled uniformly from around the concentrator's circumference.
Secondary airflow:	325 LPM at +0.4 cm of water static head.
Secondary airflow connection:	Hose barb fitting on base surface for nominal 3.8 cm ID hose.
Concentration enhancement:	4 - 15 times, typical, depending on primary/secondary airflow ratio.
Overall size:	38 cm high x 25.4 cm diameter max.
Weight:	6.32 kg (13.9 lbs.)
Operating temperature range:	-40°C to 60°C
Power consumption:	<ul style="list-style-type: none"> • 90 watts for 28 V ECM drive motor. If operated from DC, please specify DC source voltage of 12, 24 or 28 VDC. • 100 to 230 VAC lump-in cord AD/DC converter supplied. Please specify AC voltage range required.
Sound level:	72 db-A @ 1 meter radius on inlet equatorial plane.
Mounting:	Quick-detach tripod legs; 0.53m to 1.46m adjustable height.
Accessories:	<ul style="list-style-type: none"> • Hard shell carrying case. • Electret sample filter assembly (for stand-alone operation).

Specifications for SASS 2300 Wetted-Wall Air Sampler	
Operating principle:	Multi-stage wetted-wall cyclone with enhanced particulate collection.
Air collection rate:	325 LPM using 30,000 hr. life brushless fan.
Particulates collection range:	1-10 µm. Contact Research International regarding vapor collection applications.
Concentration ratio:	65,000/min., nominal.
Liquid inventory:	4-5 cc range, adjustable by user. Proprietary control loop maintains a constant liquid volume in the sampler, independent of collection time, temperature, or humidity; useful for concentrating trace airborne analytes.
Make-up water:	1 liter on-board reservoir; supplemental off-board reservoirs may be used in fixed installations: 0.8 cc/min typical evaporation rate at 20C/50% RH.
Physical size:	18.4 cm x 21.3 cm x 34.3 cm (7.2" W x 8.4" D x 13.5" H).
Weight:	3.7 kg without battery, 4.7 kg with battery (8.2/10.4 lbs). Add 1 kg (2.2 lbs) for 1 liter of water.
Air inlet:	Industry-standard threaded adapter. It is recommended that third-party accessories have an airflow channel 2.54 cm diameter or larger.
Humidity range:	Non-condensing conditions.
Operating temperature:	Above freezing conditions to 66° C.
Power source:	12 VDC BA-5590/U primary battery; or BA-5390/U extended life primary battery; or UBI 2590 rechargeable battery; or 82-265 Volt (47-63 Hz) AC lump-in-cord power supply.
Power consumption:	1.33 amps @ 12 V, 16 W.
Sample extraction:	On-board 12 cc/min peristaltic pump, manual or remotely controlled. Vial filling module included. Air sampling may continue during extraction.
System controls:	Microprocessor controlled. RS-232 or optional wireless link for remote operation or reprogramming. Additional TTL and motor drivers available.
Sound level:	60 dB (A).

Package:	Lightweight two-piece molded plastic shell with swivel-style carrying handle.
Decontamination:	Auto-flush protocol using onboard water, or manual flush with detergent and/or disinfectant. Disposable high-performance pull-through fan module.
Accessories:	Carrying case; inlet hose; 8cc sample bottles; sample bottles; rechargeable battery and charger.
Approvals:	U.S. Dept. of Homeland Security certified under U.S. Safety Act of 2002
<i>Research International reserves the right to change specifications without prior notice.</i>	

U.S. Headquarters Office

Research International, Inc.

17161 Beaton Road SE, Monroe, WA 98272-1034
 Phone: 360-805-4930 • Fax: 360-863-0439
 Toll Free: 1-800-927-7831
 Email: sales@resrchintl.com • Web: www.resrchintl.com

U.S. East Coast Office

Jon Tobelmann
 Phone: 703-625-8381
 Email: jontobelmann@resrchintl.com

For international distributors and representatives please contact us.

