



SASS[®] 4100 Plus

High-Volume Dry Air Sampler + Particle Extractor

Multi-Functional CBRN Solutions



*SASS[®] 4100 Plus: High-Volume Dry Air Sampler
PLUS Particle Extractor*

The SASS[®] 4100 Plus provides total sampling capability by combining a highly efficient, two-stage, dry filter-based aerosol collection device with a particle extractor. The system can be used for many applications requiring the collection and later analysis of airborne particulates, including: counter-terrorism, epidemiology, agriculture, food or medical facility air quality testing.

The SASS 4100 continuously samples over 4,000 liters/minute of ambient air as a primary air stream. Particulates in this air stream are transferred to a much smaller secondary air stream using centrifugal and virtual impaction principles. Particles are routed into the secondary flow by forcing primary circuit air to circulate through specially shaped channels where centrifugal force and particle momentum isolate and concentrate the particles. 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 air stream. Particulates are collected from this concentrate by directing the secondary air through a disposable filter capture element (see figure below). This filter is up to 50X more efficient than a conventional glass or cellulosic material because each fiber incorporates a built-in electric field that captures

particles using electrostatic dust precipitator principles, but at a microscopic level. The electret filter is mounted in a compact, easily disengaged holder located under the SASS 4100's baseplate.

Once concentrated samples have been collected, the SASS 3010 particle extractor is used to extract and transfer captured particles into a small fluid volume for analysis. This extraction process is simple and takes 1 to 2 minutes.

For more technical information, visit www.resrchintl.com.



SASS 4100 Two-Stage Aerosol Collector Specifications	
Characteristic	Description
Primary Airflow	4,000 liters/min sampled uniformly from around the concentrator's circumference.
Secondary Air Collection Rate	HEPA-style filter: 49 LPM. Bioaerosol filter: 265 LPM.
Filter Collection Efficiency	HEPA-style filter: More than 95% for > 0.3 µm diameter. Bioaerosol filter: 50% at 0.5 micron diameter.
Filter Media Size	4.4 cm active diameter filter, mounted in 6.0 cm diameter injection-molded holder.
Filter Mass And Composition	HEPA-style filter: 2.2 mg/cm ² for active media; 8.6 mg/cm ² including backing scrim Bioaerosol filter: 12 mg/cm ² Both filters are composed of polypropylene electret micro-fiber.
Filter Mount	Hat-shaped fixture that locks onto the device's baseplate
Overall Size	38 cm high x 25.4 cm diameter max.
Weight	6.32 kg (13.9 lbs.)
Operating Temperature Range	-40°C to 70°C
Operating Life	ECM fan rotor is only moving part. A bearing life of 70,000 hours is expected at 40°C.
Power Consumption	<ul style="list-style-type: none"> • 160 watts for ECM drive motor at 24 VDC. • 100 to 230 VAC lump-in cord AC/DC converter supplied.
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).
SASS 3010 Particle Extractor Specifications	
Filter Compatibility	For use with SASS 3100 and SASS 4100 filters
Extraction Method	Acoustic vibration of the fluid-saturated filter is followed by counter-flow discharge of the suspended aerosol particles.
Extraction Efficiency	60-80% typical
Carry-Over	1.1% with dry wiping, and 0.01% to 0.1% with a 5 ml flush. Additional flushes will reduce carry-over further.
Extraction Time	1 to 2 minutes, typical, with a flush cycle.
Extraction Fluid	A pre-filled dropper bottle provides enough buffered extraction fluid to make a 5 ml sample. Other fill levels to 10ml on user request.
Sample Fluid Storage	The extraction fluid bottle is also used for fluid sample storage upon extraction completion.
Physical Size	<ul style="list-style-type: none"> • Body: 10.2 cm (W) x 13.4 cm (D) x 14.5 cm (H) • A 7.8 cm-high plunger protrudes from the extractor's top surface.
Weight	800 grams
Electrical Power	Two size "D" primary batteries.
Operating Temperature Range	0°C to 70°C
<i>Research International reserves the right to change specifications without prior notice.</i>	

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