



## A Comparison of Portable Aerosol Samplers

Feature	SASS 2300 (2)	SASS 3100 (3)	SASS 4100 (4)	Competitor SpinCon, (Innovaprep)	Competitor FIDO B1 (FLIR)(1)	Competitor MAS-100 NT (MBV AG)	Competitor Coriolis RECON (Bertin)	Competitor Airport MD8 (Sartorius)	Competitor XMX-CV (Dycor) Commercial
<b>Operating Principle</b>	Patented multi-stage wetted-wall cyclone with enhanced particulate collection.	Proprietary Electret dry filter media with high efficiency centrifugal fan	Patented two-stage aerosol concentration with collection on proprietary electret dry filter media	Wet concentrator, mains powered only	Rotating impeller arms impact airborne particles, wash-down after sampling with a fluid	Dry air impaction	Wet cyclone, conical sample cup	Filter sampler with gelatin filter that is laid directly onto agar- or direct impingement onto an agar plate	Rotating impinger
<b>Sampling rate, LPM</b>	325	300 typical. User adjustable 150 to 350	3600	450	200	100	600	30, 40, 50, and 125	530
<b>Maximum air sample volume (m<sup>3</sup>)</b>	No limit	No limit	No limit	162		10 to 500 liters	3 to 9	2000 liters	
<b>Max sampling time</b>	No limit	No limit	No limit	5 min. – 6 hrs.	5,15,30,60 min	10 min. or less	Up to 15 minutes (6 hr option(6))	1.1 hour; factory-set max. time	
<b>Programmable sampling protocols</b>	Yes, single and multiple sampling events per run	Yes, single and multiple sampling events per run	Optional using remote PC	Yes, limited	No, other than time for single sample	Yes	No, other than time for single sample	No, other than time for single sample	No, other than time for single sample
<b>Remote PC control and operation</b>	Yes; full protocol and command	Yes; full protocol and command	Optional	Yes	No	Yes	Limited; remote trigger	No	No
<b>Sampling medium</b>	Water or injected buffer	Electret filter	Electret filter	Water or buffer	Water or buffer	90mm agar plate	Water or buffer	Gelatin filters or agar plates	Water or buffer



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<b>Output sample type and size</b>	Pumped out sample or vial; 4.5 ml typical	43 mm filter or 5 ml liquid using 3010 extractor	43 mm filter or 5 ml liquid using 3010 extractor	10 ml sample	5 ml sample	Innoculated agar plate	20 ml in vial	80mm Gelatin membrane or inoculated agar dish	5 ml in collection vial
<b>Particle diameter range (microns)</b>	1 and up	0.5 to 10	0.5 to 10	0.5 and up	0.5 to 10	1.75 and up	0.5 – 10	Not known	~ 1 – 10
<b>Organism concentration after 5 min (5)</b>	361/ml	300/ml	3600/ml	225/ml	200/ml	N/A	150/ml	N/A	530/ml
<b>Concentration enhancement by extended collection time</b>	Yes	Yes	Yes	Yes	Yes	Yes, up to 10 minutes of total time	Yes, with Long Time Monitoring option	No	No
<b>Automated sample transfer</b>	Yes	No	No	No	No	No	No	No	No
<b>Rinse protocol between samples</b>	Yes	N/A	N/A	Yes	Disposable assembly instead of rinse	N/A	No	N/A	No
<b>Total samples</b>	1 sample or unlimited samples via pump-out port	1 integrated sample	1 integrated sample	1 integrated sample	1 integrated sample	1 integrated sample	1 integrated sample	1 integrated sample	1 integrated sample
<b>Radioactive aerosol sampling</b>	No	Yes	Yes	No	No	No	No	No	No



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<b>Consumables</b>	Water and collection vials	43mm Electret filter	43mm Electret filter	Water and sample bottles	Cartridge-rotor+water	90mm Petri dish w/growth media	Water and collection vials	Gelatin membranes	Water and Collection vials
<b>Max. battery time / AC operation?</b>	>20 hr on rechargeable /Yes	>20 hr on rechargeable /Yes	No attached battery; extl. DC or AC/Yes	1 hr on backup battery/Yes	2 hr. /No	7 hr. battery /Yes	1 hour /Unknown	4 hr at 125 LPM /No	AC power only
<b>Quick battery changeout</b>	Yes	Yes	No battery; extl. DC/AC	AC power only	No; estimated 3 hr. recharge	No; 3.5 hrs to recharge	No; 3 hrs to recharge	No; 4.5hrs to recharge	AC power only
<b>Temp. range</b>	Above freezing to 66°C	-40°C to 70°C	-40°C to 60°C	2°C to 50°C	2°C to 43°C	agar range, 30°C, 5%RH typ.	+0°C to +50°C	Gelatin:30°C, 85%RH; or agar limits	0°C -50°C
<b>Size</b>	18.4cm W x 21.3cm D x 34.3 cm H	15cm W x 17cm L x 20cm H	25.4cm dia x 38 cm high	45.7cm x 38.1cm x 20.3cm	13.3x15.2x37cm	Approx.. 18cm dia. x 26cm high	36.5cm x 22cm x30.6cm	30.cm L x 13.5cm W x 16.5cm H	46cm W x 58cm H x 33cm D
<b>Weight, kg</b>	4.7 with battery 3.7 without	2.8 with battery 1.8 without	6.3	21	3.4	2.2	10	2.5	17
<b>Sampler physical volume, liters</b>	13.0	5.1	19.2	35.	7.5	6.6	2.5	6.7	88
<b>Power Source options</b>	Removeable battery or DC adapter for AC power	Removeable battery or DC adapter for AC	Battery, vehicle power or DC adapter for AC	120 VAC or 12/24 VDC	Internal battery	Internal battery	Internal battery	Internal battery	110V AC or 220V AC
<b>Power Consumption</b>	16W @ 12V	8.4 W @18V	90W @ 28VDC	450 – 500 W	26W	Unknown	250W	Unknown; Internal battery	1100W @ 110VAC or 220VAC
<b>Noise level, dB(A) @1m</b>	45-60	45-60	72	Unknown	Unknown	Unknown	Unknown	48	Unknown



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<b>Serial interface</b>	Yes	Yes	Optional	No	Yes	Yes	Yes?	no	No
<b>Wireless control option</b>	Yes	Yes	Yes	No	No	No	No	No	No
<b>Consumable: cost</b>	Low- water or buffer, vials	Filter +water: \$5-10/meas.	Filter+water: \$5-10/meas.	Low- water or buffer, vials	\$75/meas.	Agar plate	Low: Water and vials	Gelatin Filter or agar plate	Low: Water or buffer

**Notes:**

- 1) Manufactured by FLIR under license from Research International, Inc.: U.S. Patents 6,484,594 and 7,261,008.
- 2) Covered by U.S. patents 6,532,835 and 7,846,228.
- 3) Extraction method covered by U.S. patents 8,057,608 and 8,142,570.
- 4) Covered by Chinese patent ZL-2009 10166843.8 and U.S. pending patents
- 5) Assuming 1 colony/liter of sampled air
- 6) Standard time is 10 minutes. For longer collection time option, user must input an expected evaporation rate and pump will replenish at this rate. This is impractical, as humidity can change significantly over a 6 hour period. The SASS 2300 automatically adjusts makeup water for changes in humidity and temperature.