8303 and 8503 Handheld Airborne Particle Counters

0.1 CFM (2.83 LPM)



The Particles Plus® 8303 and 8503 Handheld Particle Counters are designed for cleanroom monitoring, indoor air quality, industrial hygiene, research, and health & safety applications. Their patented, feature-rich design enables dynamic environmental monitoring and versatile data reporting across multiple industries.

The 8303 and 8503 measure particles from 0.3 or 0.5 to 25 µm in three user-selectable channels at a flow rate of 0.1 CFM (2.83 LPM). They offer data reporting in standard cleanroom formats or by mass concentration in µg/m³, with optional density and refractive index corrections, temperature and relative humidity probe, and CO2 and TVOC sensors, providing comprehensive environmental monitoring.

With unique features like Particles/Second and the Real-Time Meter, the 8000 Series enables efficient, on-the-go particle investigations across nearly any environment. The instruments can also operate as a remote particle counter, leveraging their intelligent battery and power conservation modes to achieve up to 100 hours of battery life.

The Particles Plus® standardized hardware and firmware simplify maintenance and reduce the total cost of ownership. Combined with extensive remote diagnostics and a lifetime warranty, the 8303 and 8503 ensure industry-leading performance and long-term value.

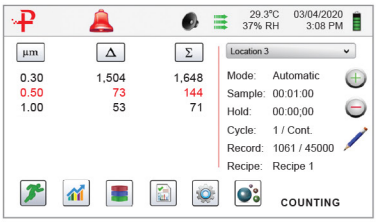
Features and Benefits

- Stores up to 45,000 sample records, 1,000 sample locations and 50 recipes
- Long life laser diode technology for reliable performance
- Approximates mass concentration in µg/m³ with density and refractive index corrections
- User selectable PM sizes from 0.3 µm to 10 µm including TPM of up to 25.0 µm
- Large, intuitive color touch screen display with an easy-to-use icon-driven interface
- Resolve issues quickly from any location with internet-enabled remote diagnostics
- Annotation function allows user to save 32 character notations to a live sample record
- Over 10 hours continuous sampling on a single charge
- Integrated handle for one-handed operation
- Common interface ensures ease of use across all products
- Connect using MODBUS™ TCP over Wired. Optional MODBUS™ TCP over WiFi and optional MODBUS™ RTU or MODBUS™ ASCII over RS-485 or RS-2322
- Displays user-definable reports for ISO 14644-1, EU GMP Annex 1 and FS 209E
- Built-in visual and audible alarms with comprehensive alarm management
- Complies with ISO 21501-4 and JIS B9921 standards
- Easy to clean and wipe down with minimal particle traps
- Equipped with a standard 1/4”–20 female mount for tripod mounting
- Lightweight high-impact injection molded plastic enclosure
- 2 year Limited Warranty (Extended and Lifetime warranties available)

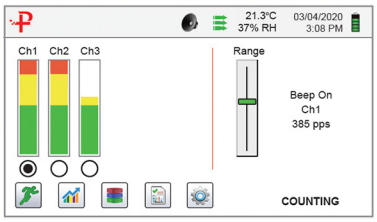
Specifications

Model	8303	8503
Size Range	0.3 to 25 µm	0.5 to 25 µm
Size Channels	Factory calibrated at 0.3, 0.5, 5.0 µm	Factory calibrated at 0.5, 1.0, 5.0 µm
Flow rates	0.1 CFM (2.83 LPM)	
Concentration Limits	15,000,000 particles/ft³ @ 10% coincidence (per ISO 21501-4), 30,000,000 particles/ft³ @ 10% coincidence (as tested and validated[1])	
Aerosol Concentration Range	0.01 to 20,000 µg/m³	
Battery Run Time	>10 hours continuous operation	
Light Source	Long life laser diode	
Counting Efficiency	50% @ 0.3 µm; 100% for particles >0.45 µm per JIS	
Zero Count	<1 count / 60 minutes (<1 particles / 6 ft³). No fault count subtraction.	
Count Modes	Particles/second, Real-Time Meter, cumulative/differential, count/m³and count/ft³, and mass concentration (PM)	
Count Alarms	1 to 9,999,999 counts	
Calibration	NIST traceable	
Display	4.3″ (10.9 cm) WQVGA (480×272) color touch screen	
Optional Printer	External thermal printer available	
Vacuum Source	Internal pump with automatic flow control	
Filtered Exhaust	Internal HEPA filter	
Number of Channels	3	
Custom Size Channels	Calibration for custom size channels available	
Audible Alarm	Adjustable built-in alarm	
Battery	Removable Li-ion (Recharge time: 4 hours within instrument, <2 hours with external battery charger)	
Reports	ISO 14644-1, EU GMP Annex 1, FS 209E	
Recipes	50 user-configurable recipes	
Communication Modes	MODBUS™ TCP over Wired. Optional MODBUS™ TCP over WiFi and optional MODBUS™ RTU or MODBUS™ ASCII over RS-485 or RS-232	
Optional Environmental Sensor	Temperature (32-122°F, ±1°F / 0-50°C, ±0.5°C) and relative humidity probe (15–90% RH, ±2%)	
Alarm	Integrated alarms for particle counts (any size channel), sensor failure, environmental sensors, and flow rate	
Standards	ISO 21501-4 and JIS B9921	
Calibration	Recommended minimum once per year	
External Surface	High impact injection molded ABS plastic	
Dimensions (L x W x H)	5.12 x 4.25 x 12.26 in (13.0 x 10.8 x 31.1 cm) including handle but excluding probes	
Weight	2.2 lb (1.0 kg)	
Accessories	User manual + Instrument Management Software (IMS) on USB flash drive, isokinetic probe, zero-count filter, battery, USB cable, and power supply	
Optional Accessories	Printed manual, temperature relative humidity sensor, carrying case, spare battery, external battery charger, external printer, barbed fittings, and tubing	
Buffer Memory	Securely stores up to 45,000 sample records with particle counts, environmental data, locations, and timestamps	
Sample Locations	Up to 1,000 locations 20 characters long	
Sample Time	1 second to 99 hours	
Power	110 to 240 VAC 50/60 Hz universal in-line power supply	
Operating Conditions	41-104ºF (5-40ºC) / 20% to 95% non-condensing	
Storage Conditions	32-122ºF (0-50ºC) / Up to 98% non-condensing	
Warranty	2 year Limited Warranty (Extended and Lifetime warranties available)	

1- Validated by independent analysis see paper available at www.particlesplus.com/aac2022_paper



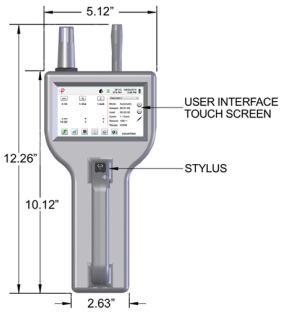
Audible and Visual Alarm Management

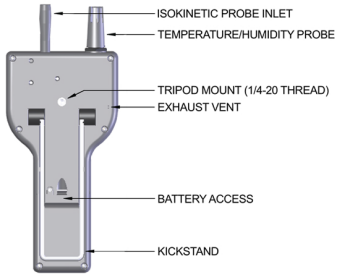


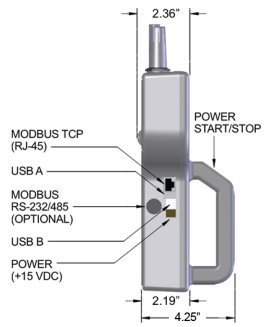
Real-Time Meter Pinpoints Particles Sources



Icon Driven Menus for Ease-of-Use







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