

# 8300-AQM1 and 8300-AQM2 Air Quality Monitors

## PM, CO<sub>2</sub>, Temperature, RH, and TVOC



The Particles Plus® 8300-AQM1 and 8300-AQM2 Handheld Particle Counters were 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 8300-AQMs measure particles from 0.3 to 25 µm in six user-selectable channels at a flow rate of 1.2 LPM. They offer data reporting in standard cleanroom formats or by mass concentration in µg/m<sup>3</sup>, with density and refractive index corrections. Included temperature and relative humidity probes, along with optional CO<sub>2</sub> and TVOC sensors, provide comprehensive environmental monitoring.

With unique features like Particles/Second and the Real-Time Meter, the 8300-AQMs enable efficient, on-the-go particle investigations across nearly any environment. These instruments can also operate as remote particle counters, 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 8300-AQMs ensure industry-leading performance and long-term value.

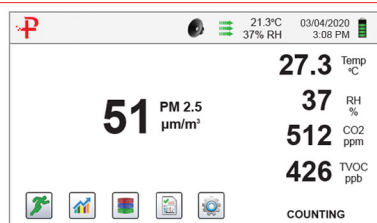
### Features and Benefits

- Stores up to 45,000 sample records, 1,000 sample locations and 50 recipes
- User selectable PM sizes from 0.3 µm to 10 µm including TPM of up to 25.0 µm
- Approximates mass concentration in µg/m<sup>3</sup> with density and refractive index corrections
- 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 Ethernet, USB, Wi-Fi (optional), RS 485 or RS232
- 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)

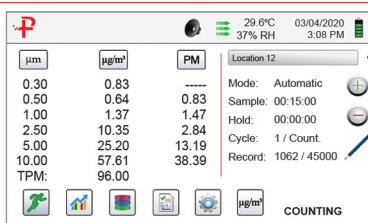
## Specifications

|                              |                                                                                                                                                                                                                   |
|------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Model</b>                 | <b>8300-AQM1 and 8300-AQM2</b>                                                                                                                                                                                    |
| Size Range                   | 0.3 to 25 $\mu\text{m}$                                                                                                                                                                                           |
| Size Channels                | Factory calibrated at 0.3, 0.5, 1.0, 2.5, 5.0, 10.0 $\mu\text{m}$ variable binning                                                                                                                                |
| Flow rates / Accuracy        | 1.2 LPM                                                                                                                                                                                                           |
| Concentration Limits         | 15,000,000 particles/ft <sup>3</sup> @ 10% coincidence (per ISO 21501-4)<br>30,000,000 particles/ft <sup>3</sup> @ 10% coincidence (as tested and validated <sup>1</sup> )                                        |
| Aerosol Concentration Range  | 0.01 to 20,000 $\mu\text{g}/\text{m}^3$                                                                                                                                                                           |
| Battery Run Time             | >10 hours continuous operation                                                                                                                                                                                    |
| Light Source                 | Long life laser diode                                                                                                                                                                                             |
| Resolution                   | 0.00003 $\mu\text{g}/\text{m}^3$                                                                                                                                                                                  |
| Counting Efficiency          | 50% @ 0.3 $\mu\text{m}$ ; 100% for particles >0.45 $\mu\text{m}$ per JIS                                                                                                                                          |
| Zero Count                   | <1 count / 60 minutes (<1 particles / 6 ft <sup>3</sup> ). No fault count subtraction. No appreciable drift.                                                                                                      |
| Count Modes                  | Particles/second, Real-Time Meter, cumulative/differential count/m <sup>3</sup> and count/ft <sup>3</sup> , and mass concentration                                                                                |
| 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           | 6                                                                                                                                                                                                                 |
| Custom Size Channels         | Calibration for custom size channels available                                                                                                                                                                    |
| Audible Alarm                | Adjustable integrated alarm                                                                                                                                                                                       |
| Communication Modes          | Ethernet, USB, RS485, RS232, and (optional) 802.11b/g wireless                                                                                                                                                    |
| Environmental Sensors (AQM1) | Includes NDIR-CO <sub>2</sub> sensor (0-5000 ppm $\pm$ 1%, resolution 1 ppm, response rate 20 seconds), temperature (32-122°F, $\pm$ 1°F / 0-50°C, $\pm$ 0.5°C) and relative humidity probe (15-90% RH, $\pm$ 2%) |
| Environmental Sensors (AQM2) | Includes all sensors in the 8300-AQM1 and PID-TVOC sensor (5 ppb - 50 ppm $\pm$ 1.5%, response rate <3 seconds)                                                                                                   |
| Alarm                        | Alarms for particle counts (any size channel), sensor failure, environmental sensors, and flow rate                                                                                                               |
| Standards                    | ISO 21501-4 and JIS B9921                                                                                                                                                                                         |
| Instrument Calibration       | Recommended minimum once per year. Gases, temperature and humidity sensors field calibratable.                                                                                                                    |
| External Surface             | Lightweight high-impact injection molded plastic enclosure                                                                                                                                                        |
| Dimensions (L x W x H)       | 6.33 x 4.25 x 12.26 in (16.1 x 10.8 x 31.1 cm) includes handle and does not include probes                                                                                                                        |
| Weight                       | 2.5 lb (1.1 kg)                                                                                                                                                                                                   |
| Accessories                  | User manual + Instrument Management Software (IMS) on USB flash drive, isokinetic probe, temperature relative humidity sensor, purge filter, battery, USB cable, and power supply                                 |
| Optional Accessories         | Printed manual, case, spare battery, external battery charger, external printer, barbed fitting, and tubing                                                                                                       |
| Data Storage                 | Securely stores up to 45,000 samples with particle counts, environmental data, locations, and timestamps                                                                                                          |
| Sample Time                  | 1 second to 99 hours                                                                                                                                                                                              |
| Power                        | 110 to 240 VAC 50/60 Hz universal in-line power supply                                                                                                                                                            |
| Operating Conditions         | 41-104°F (5-40°C) / 20% to 95% non-condensing                                                                                                                                                                     |
| Storage Conditions           | 32-122°F (0-50°C) / Up to 98% non-condensing                                                                                                                                                                      |
| Warranty                     | 2 Year Limited Warranty (Extended and Lifetime Warranties available)                                                                                                                                              |

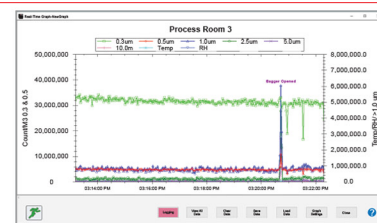
1- Validated by independent analysis see paper available at [www.particlesplus.com/aac2022\\_paper](http://www.particlesplus.com/aac2022_paper)



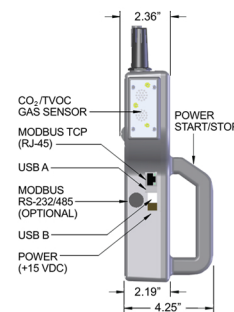
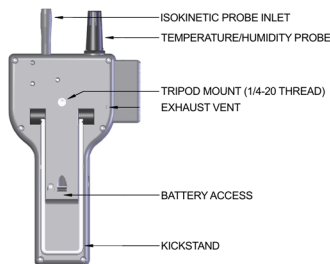
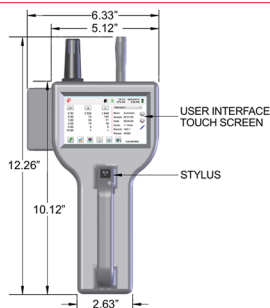
Configurable Environmental Sensor Display



Simultaneous Display of Multiple PM Sizes



Control and Manage Remotely with IMS



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