# B7301-AQM-1 and B7301-AQM-2 Air Quality Monitors

## PM, CO$_2$, Temperature, RH, and TVOC

The Airy Technology® B7301-AQM1 and B7301-AQM2 Air Quality Monitors measure particles from 0.3 to 25.0 µm at a flow rate of 0.1 CFM (2.83 LPM). These user-friendly instruments display up to six particle size channels, temperature, relative humidity, and CO2 (AQM1) or CO2 + TVOC (AQM2).

Designed for research, industrial hygiene, indoor air quality, and cleanroom applications, the B7000 Series offers exceptional versatility. From the cleanest labs to the dirtiest worksites, confidently monitor any environment thanks to the industry's highest particle concentration limits.

With 10 hours of continuous battery operation and up to 100 hours using our patented intelligent battery management system, these instruments are built for long-lasting performance on a single charge. The Airy Technology® Real-Time Monitoring technology enables dynamic particle investigations, displaying data in particles per second to help users quickly locate contamination sources in controlled environments.

Data can be managed directly on the device or through the free Airy Technology® software. Export raw data in .CSV format or generate compliant reports (ISO 14644-1, EU GMP Annex 1, or FS 209E). Remote diagnostics are also available from anywhere with an internet connection. The B7000 Series can function as a fully portable, battery-operated solution or be easily integrated into building automation and cleanroom management systems with multiple communication options.
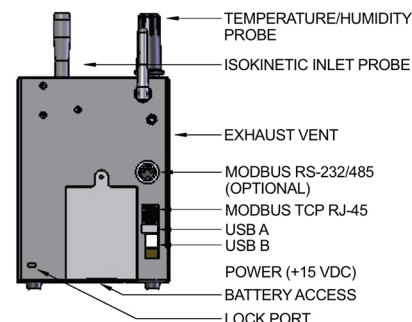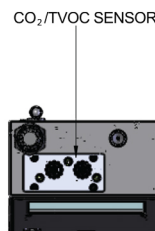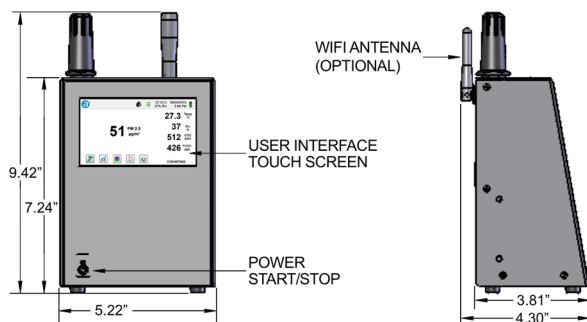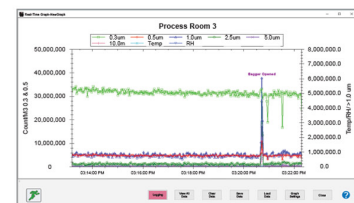
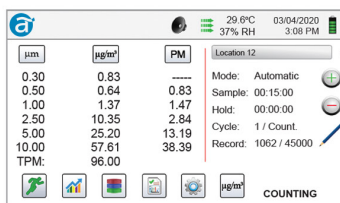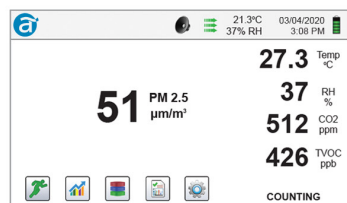### Features and Benefits

- Measures up to six particle size channels simultaneously
- Approximates mass concentration in µg/m³ with density and refractive index corrections
- User selectable PM sizes from 0.5 µm to 10 µm including TPM of up to 75 µm
- Long life laser diode technology for reliable performance
- Large, icon-driven color touchscreen display for easy operation
- Includes temperature and relative humidity probe
- Stores up to 45,000 sample records, 1,000 locations, and 50 sampling recipes
- Annotation feature allows users to save 32-character notes with sample records
- Ethernet, USB, RS485, RS232, and wireless (802.11b/g) communication options
- Troubleshoot and diagnose issues remotely from anywhere with an internet connection
- Generate and export reports for ISO 14644-1, EU GMP Annex 1, and FS 209E
- Built-in audible and visual alarms for real-time alerts
- Complies with ISO 21501-4 and JIS B9921 standards
- Seamlessly integrates into facility monitoring and building automation systems
- Easy to clean, lightweight stainless steel enclosure with minimal particle traps
- 2 year Limited Warranty (Extended and Lifetime warranties available)

# Specifications

| Model | B7301-AQM1 and B7301-AQM2 |
|---|---|
| Size Range | 0.3 to 25 µm |
| Size Channels | Factory calibrated at 0.3, 0.5, 1.0, 2.5, 5.0, 10.0 µm variable binning |
| Flow rate | 0.1 CFM (2.83 LPM) |
| Aerosol Concentration Range | 0.01 to 20,000 µg/m³ |
| Light Source | Long life laser diode |
| Resolution | 0.00003 µg/m3 |
| Zero Stability | No appreciable drift |
| Count Modes | Real-Time Meter and graph, cumulative/differential count/m³ and count/ft³, and mass concentration (PM) |
| Log Interval | 1 second to 99 hours |
| Calibration | NIST traceable |
| Display | 4.3″ (10.9 cm) WQVGA (480×272) color touch screen |
| Printer | (Optional) 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 built-in alarm |
| Communication Modes | Ethernet, USB, Wireless 802.11 b/g (Optional), RS485 or RS232 |
| Environmental Sensors B7301-AQM1 | Includes NDIR-CO2 sensor (0-5000 ppm ±1%, resolution 1 ppm, response rate 20 seconds), temperature (32-122°F, ±1°F / 0-50°C, ±0.5°C) and relative humidity probe (15–90% RH, ±2%) |
| Environmental Sensors B7301-AQM2 | Includes all sensors in the 7301-AQM1 and PID-TVOC sensor (5 ppb - 50 ppm ±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 are field calibratable. |
| External Surface | Stainless steel |
| Dimensions (L x W x H) | 5.22" x 3.81" x 9.42" (13.3 cm x 9.7 cm x 23.9 cm) includes barb fitings |
| Weight | 4 lb (1.8 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, carrying case, spare battery, external battery charger, external printer, barbed fittings, and sample tubing |
| Data Storage | 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 | 41º to 104ºF (5º to 40ºC) / 20% to 95% non-condensing |
| Storage Conditions | 32º to 122ºF (0º to 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

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