SecureAire™

Air Quality Monitor
AQM-150

The AQM-150 provides SecureAire customers with the ability to perform real-time testing, to help understand and address airborne contamination issues.

Indoor Air Quality has become one of the top concerns for building owners, occupants, and visitors. At SecureAire our mission is to provide state-of-the-art technologies to help reduce or eliminate all unfriendly airborne contaminants from Indoor Air. While there are many "air purification" systems available in today's marketplace, the diagnostic tools needed to verify their advertised performance within the breathing zone have been lacking.
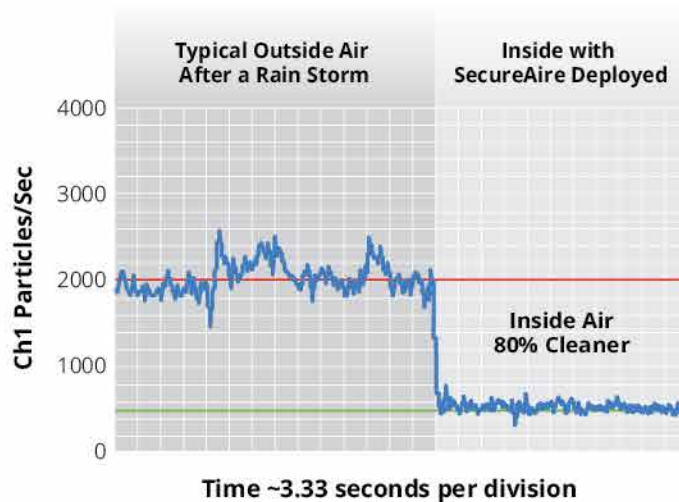
With the need to measure and verify performance of air purification systems within the breathing zone, SecureAire has developed it's next-generation Air Quality Monitor, the AQM-150. The AQM-150 is a state-of-the-art particle monitor that has the ability to measure both small and large particles so that building operators can quantify the real-time performance of their existing filtration systems. An independent measurement tool provides owners and operators with real-time data that provides the ability to understand and address any potential airborne contamination ingressions.

SecureAire's AQM-150 is an inexpensive, reliable, and easy-to-use instrument. It gives you the ability to measure particle levels that assist with the indoor air quality control of bacteria, virus and ventilation contamination. With a built-in color WQVGA touch-screen display and the ability to easily download data, real-time information is literally at your fingertips. Data is automatically stored for downloading and printing following a few easy steps. The touch-screen display quickly and accurately provides you with a visual readout of your systems performance.

The AQM-150 provides data in a form similar to the graph shown to the left. It has the ability to graph three particle size channels including 0.3, 0.5 and 2.5 microns, allowing you to easily monitor and determine the effectiveness of your building's HVAC filtration system.

AQM-150 Data Output Graph

Typical Outside Air After a Rain Storm

Inside with SecureAire Deployed

Inside Air 80% Cleaner

Ch1 Particles/Sec

4000
3000
2000
1000
0

Time ~3.33 seconds per division

Particle Counting: Baseline, Drift and Recovery

Any indoor environment has airborne contamination in the form of particulates, TVOCs, gases, and/or odors. In order to control and clean up these indoor environments, there are three basic principles to consider:

1. How to "Characterize" the environment.
2. How to "Optimize" the environment.
3. How to "Control" the environment.

60,200 Particles/Ft³

Drift

Recovery

Baseline

27,680 Particles/Ft³

New Baseline

12,107 Particles/Ft³

In order to "Characterize" the environment, we need to find out what our particle levels actually are. The first level that needs to be characterized is the **Baseline**. This level occurs when the environment is stagnant. Particle levels **Drift** upward either intentionally or not. As an example, if you were to walk into a meeting room and clap your hands to wake everybody up, the particle levels in the room would rise. Usually, in time, these levels will return to the baseline level. This amount of time is also known as the **Recovery** time. The faster the recovery time, the cleaner the indoor environment. Knowing the Baseline, Drift(s), and Recovery time(s) provides you with a fingerprint of the particle levels, as well as any contamination levels in the occupied space.
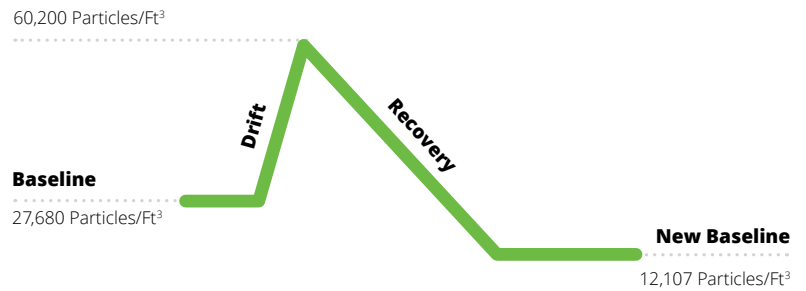
Once the environment has been characterized, "Optimization" is next. Optimization is the step in which you employ purification technologies in order to treat and reduce the amount of airborne contamination in a specific area. In this case, SecureAire's ACTIVE Particle Control Technology (PCT) is the most advanced purification technology available.

Finally, once particle levels have been optimized, they must be "Controlled." Airborne contamination ingressions should be controlled by the use of a proven purification method. SecureAire's PCT System is recommended to control contamination levels and establish a new and lower baseline level.

SecureAire's AQM-150 is an efficient and effective tool for measuring the performance of HVAC purification and filtration systems.

System Specifications

Power Supply	110 to 240 VAC 50/60 Hz/Li-ion battery for up to 10 hours of continuous operation.
Display	4.3" WQVGA color touch screen
Data Output	Via USB, Ethernet, or optional wireless 802.11 b/g, RS232 or RS485
Data Storage	Stores up to 4 Years of data (adjusts with reading interval setting)
Particle Monitor	Channels 0.3, 0.5 and 2.5 microns per cubic foot of air
BAS Integration	Easily integrates into any BAS system
AQM Dimensions	10" L x 5" W x 4.5" H
Calibration Standards	NIST traceable to ISO21501-4 and JIS B9921
Unit Weight/Flow Rate	2.2 lbs (1.0 kg) / 0.1 CFM/2.83 LPM
Environmental Sensor	Temperature and RH probe 32° to 122° F (0° to 50° C), 15-90% RH