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## Ambient Air Monitoring with the Model 108-L Ozone Monitor

**Portable Federal Equivalent Method (FEM) Quality Ozone Measurements Onboard a Vehicle and in Remote Locations are Made Possible by a Small, Lightweight, and Low-Power Ozone Monitor**

**The Problem:** As cities grow and urban areas continue to expand at a rapid rate, more and more citizens find themselves living in areas where their exposure level to common airborne pollutants is unknown. It has become a daunting task for federal and state agencies such as the United States Environmental Protection Agency (US EPA) and Colorado Department of Public Health and Environment (CDPHE) to be able to accurately report air pollution exposure to their citizens. Gone are the days of being able to commission a few stationary monitoring sites around the city as a means of quantifying the exposure of a population. Now air monitoring techniques that are more focused on the air pollution in a local areas are required to ensure pollutants stay within acceptable levels over a large area.



***Monitoring for Ozone Pollution on a Roadway has Never Been Easier than with a Model 108-L Ozone Monitor***

This has led to a sharp increase in hyperlocal monitoring of air quality. Hyperlocal monitoring techniques allow air pollution to be measured on every street and in every neighborhood of a city instead of just relying on a few monitoring stations that are very spread apart and relatively inflexible. Knowing the pollutant levels over a much smaller area instills confidence in citizens that their exposure to pollution is within acceptable levels. It also allows cities and states to identify areas of pollution concern and find solutions to these pollution problems where they might have gone unnoticed in the past.

The increase in hyperlocal monitoring has created a need in the marketplace for portable air quality instrumentation that is capable of proving highly accurate measurements. This is much easier said than done as the desire to shrink the instruments has led to an increase in the use of sensors, which do not reliably provide measurements of needed accuracy. This is where 2B Technologies has been able to excel, as our mission statement as a company is to develop miniaturized air pollution monitors that utilize the same highly accurate measurement techniques as much larger instruments. Our expertise in this field led to the creation of our Model 108-L Ozone Monitor, which combines UV-absorbance measurement technology with a small footprint (8.7 x 4.0 x 3.0 inches), low power requirement (2 watt), and Federal Equivalent Method (FEM) certification.



***The standard version of the Model 108-L can be integrated into a mobile air monitoring package***

**The Solution:** Many companies participating in the rise in hyperlocal air monitoring are using the Model 108-L as their instrument-of-choice in their air monitoring packages. One such group has integrated the standard version of the 108-L into their fleet of vehicles designed for mobile measurements. The purpose behind these mobile measurements is to “map out” the pollution levels across an entire city by driving the streets, highways, interstates, etc. With all of this newfound data, previously undiscovered areas of air pollution concern are being unearthed, and corrective actions spurred by the government are occurring to remedy these issues. The sharp uptick of hyperlocal monitoring has truly given every citizen the ability to gain knowledge about the air quality in their

community and make the appropriate choices about how to live their everyday lives.

Other groups who have employed the Model 108-L for air quality monitoring have chosen to use a more stationary approach. These companies have decided to deploy a network of stationary monitors on fences, streetlights, lamp posts, etc., in an effort to better map the air quality around a city. By commissioning a vast network of stationary monitors in addition to the existing compliance/regulatory monitoring stations, the air quality situation in a city comes more into focus. This approach to monitoring requires instrumentation with low power requirements because many of the deployment locations are in areas where access to power is highly limited. This allows the Model 108-L to shine as the method of choice for these customers because the device has such a low power-draw compared to other FEM ozone monitors with similar performance specifications. The modest power requirement opens the door to the potential for solar power to be used to operate the Model 108-L. The ability to harness solar power allows for the ozone monitor to be deployed in remote locations and take full advantage of the current hyperlocal air monitoring trend.



***The Model 108-L integrated into a weatherproof enclosure for outdoor monitoring applications***

**The Bottom Line:** The Model 108-L is at the forefront of the hyperlocal monitoring trend. Its small footprint, low power requirement, and US EPA certification make it ideal to be deployed in a variety of ambient air monitoring packages. The instrument can be utilized for mobile measurements or as part of a stationary monitoring package (for example, in a monitoring shelter or deployed in a remote environment).



***The Model 108-L with a metal enclosure and built-in pump***

The Model 108-L is offered in three configurations:

- **Standard Version:** A “bare-bones” version of the Model 108-L, without a pump in an OEM configuration.
- **AQLite Ambient Monitoring Package:** The Model 108-L in a weatherproof/NEMA enclosure package that provides ozone measurements along with meteorological measurements (T, P, RH) and sensor-based measurements for Particulate Matter (PM<sub>1</sub>, PM<sub>2.5</sub>, and PM<sub>10</sub>), Carbon Monoxide (CO), and Carbon Dioxide (CO<sub>2</sub>). The AQLite has the ability to upload data directly to a database using a cellular connection where it can be downloaded by the user in real-time.
- **Pump and Enclosure:** The Model 108-L housed in a metal enclosure with a built-in pump.

The standard version and version with a pump/metal enclosure are designed for easy integration into the user’s ambient air quality monitoring packages, whereas the AQLite monitoring package is designed to be a stand-alone monitoring system. All configurations offer a precision of 1.5 parts per billion (ppb) ozone and a measurement range of 0-100 ppm. The Model 108-L has several output options (RS232, 4-20 mA, 0-2.5 V), and a two-level relay is integral to the instrument.

No matter the requirements of an ambient air monitoring application, there is a version of the Model 108-L that is well-suited for deployment. Please contact 2B Technologies to discuss using the versatile Model 108-L for your application today.