elm
air sensing network

Better Air. Better Life.

Breath easier with the Elm air sensing network

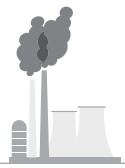
Air quality has long been known to impact the health of humans and the world we live in. In order to effectively monitor and minimize pollutants in the environment, we need to be able to detect them accurately, instantly and locally. We need to better understand their sources in order to make more informed decisions and take more effective action. And it all begins with the Elm air sensing network.

What is Elm and how does it work?

Designed to monitor outdoor air quality using a range of dedicated nano-technology sensors, Elm measures local pollutant levels in real time, wirelessly transmitting the data to a cloud-based system for storage, analysis and processing. The entire end-to-end hardware and software solution seamlessly integrates with municipal analytic platforms for fast, simple adoption and easy ongoing operation.

Empowering a world of change

Installed as a high-density network of sensors across a city, Elm makes it easy to identify sources of pollution at a hyper-local level, filling the data gap between existing air-monitoring points and traditional dispersion models. Municipalities now have a tool that offers clearer, more focused insights into air quality that can be used to empower change for the good of their citizens and the environment.



Air pollution contributes to 2.4 million deaths each year

PerkinElmer®
For the Better

What, where, when and how?

A closer look at Elm's technology and applications

Compact, durable and weather-resistant, Elm can be easily installed virtually anywhere and requires limited or infrequent maintenance. Nodes can be placed on any mountable surface with access to electricity and provide real-time data sampling every 20 seconds, transmitting the data wirelessly (by Wi-Fi or GSM) to a secure cloud server.

Pollution can change your DNA in 3 days

Where to plant Elm

Whether you have a particular area of air quality concern in your city or simply want to gain insights for urban planning, traffic pattern, law enforcement, public health or other municipal initiatives, Elm offers the ideal monitoring solution for any location:

- Parks
- Schools
- Office parks
- Roadways
- Industrial areas
- No-idle zones

Watching over your city. Watching out for your citizens.

Elm's dedicated sensor technologies monitor and measure a wide array of environmental conditions and pollutant levels, including:

Target	Technology
Nitrogen Dioxide (NO_2)	Metal Oxide Sensor
Ozone (O_3)	Metal Oxide Sensor
Particulate Matter	Light Scattering
Volatile Organic Compounds (VOCs)	Metal Oxide Sensor
Noise	Microphone
Temperature	Dielectric Film
Humidity	Dielectric Film

The system provides such pinpoint, precise information that data can be easily time-stamped and overlaid on a calendar—hourly, daily, weekly or monthly—to measure and assess the impact of specific events.

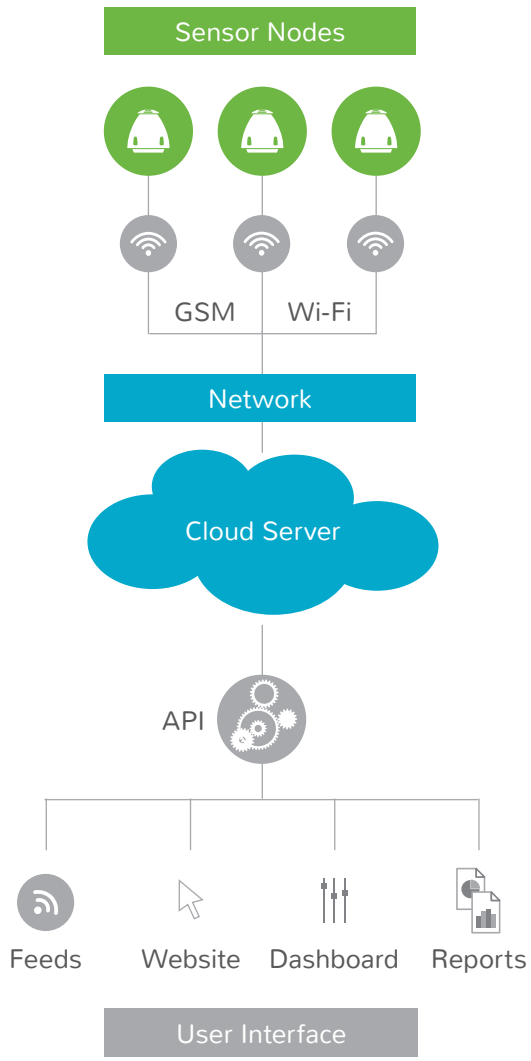
You can see the whole city from here

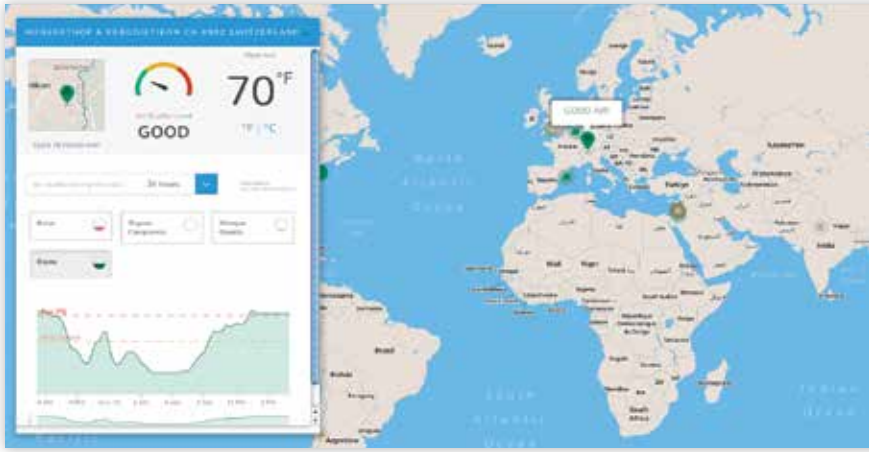
Intuitive software. Invaluable insights.

Every network feeds into a secure, remotely accessible cloud server that collects, stores, backs up and processes the data. From there, the information can be accessed and shared through a variety of user interfaces including an interactive map showing real-time pollutant levels at every Elm location.

From web-based data visualizations that are easy to read to complete in-depth reports of raw or processed data, Elm delivers a wealth of information that is both accessible and actionable.

The transfer of information from street to screen





Communicate with the community

Elm reports can easily be made available to the general public, giving citizens a better understanding of potential neighborhood issues and engaging them in an ongoing conversation about ways to enhance the quality of their air... and the quality of their life.

See what you're missing

Supplement and enhance your air-monitoring capabilities with Elm

No matter what systems you currently have in place to monitor your city's air, Elm promises to "fill in the gaps" and give you a more complete and detailed picture. By monitoring street-by-street, minute-to-minute, all day every day, Elm gives you insights into your environment never before possible.

Seamless integration. Better information.

Elm can integrate perfectly with your existing network of air-monitoring technologies, complementing everything from traditional reference monitoring systems to regulatory data stations. The difference with Elm is that its high-density deployment and hyper-local sensing allows you to see into specific locations, gaining insights into every corner of the community to better engage the people who live there and better define public policy.

Imagine being able to identify pollutant hotspots, to see the impact of an individual event as it happens. The spike in VOCs from chemical plant fire. The elevated levels of Nitrogen Dioxide from an idling truck. That's the breadth and depth of information at your fingertips with Elm.

Healthier cities. Healthier citizens.

Your city is a living, breathing thing. From the people in its streets, to the trees in its parks, to the water in its rivers, every urban environment is just that—an environment. It needs constant attention and protection to ensure its health, safety and sustainability.

So take your air monitoring to the next level. Look at sources of pollution more thoroughly, precisely and locally. Make a change in how you do things and see the change in your community. Make your own impact on human and environmental health.

To see Elm in action and what it could mean to you and your city, explore the live map at www.elm.perkinelmer.com/municipal.

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