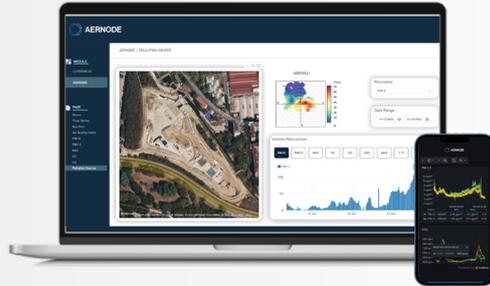




AERNODE

Outdoor Air Quality Monitoring

Solutions for Continuous Ambient Air Measurement



Powered by  QUANTA



AERNODE

Aernode is a next-generation air quality monitoring system for outdoor environments. It delivers real-time, continuous measurements of key atmospheric pollutants and environmental conditions, providing a scalable and cost-effective alternative to traditional monitoring stations.



The Ecosystem



1 Air Quality Monitors

Multi-pollutant AQMs for continuous outdoor monitoring.
A modular design built to support a wide range of applications.



2 Data Management

Connect to Aernode Cloud for an out-of-the-box solution, or integrate devices into any existing platform.



3 Data Reporting Tools

Web-based tools for real-time monitoring, historical analysis, automated reporting, and public-facing dashboards.

AIR QUALITY MONITORS



Aerode is a modular, multipollutant outdoor monitoring system that combines high configurability with compact design. The product line includes two models — **Aerode LITE** and **Aerode PRO** —tailored for different monitoring needs, from essential deployments to advanced sensing applications.



Accurate Data

Best-in class sensor technology



Multi Pollutant

Modular configurations for any monitoring scenario



Smart Maintenance

Quick-swap sensor replacement kits



Remote Management

Bidirectional connectivity for full device control

BASE STATION

Connectivity	Multiband Cellular Wi-Fi, Modbus RTU (RS485)
Transmission Frequency	30 sec to 60 minutes
GNSS	GPS · GLONASS · Galileo · BeiDou
Power Supply Consumption	5-15 Vdc 2-6 W
Enclosure	Polymer Composite · IP55 weatherproof
Optimal Temp. Range	-20 °C to +50 °C 0 to 95% RH
Weight & Size (L x H)	950 gr - 200 x 250 mm

CONFIGURABLE SENSORS

Built-in Sensors	Air Temperature (Internal & External) Relative Humidity · Atmospheric Pressure
Optional Sensors	PM 10 · 4 · 2.5 · 1 · TVOC Index · CO2 Sound Level Meter
Sensor Deck	NO2 · O3 · CO · SO2 · H2S · NO · NH3 · CL · HCL PH3 · HCN · PH3 · ETO · T. VOC (PID) · H2O2
External Sensors	Rain Gauge · Wind Speed · Wind Direction Solar Radiation

SYSTEM ARCHITECTURE

CORE SENSOR BOARD

The Core Sensor Board is integrated into every Aernode device as the default sensing layer. It includes standard environmental sensors and supports a limited number of optional sensors, enabling basic customization without the need for additional modules.

BUILT-IN SENSORS	 Air Temperature	 Relative Humidity	 Atmospheric Pressure	
OPTIONAL SENSORS	 Particulate Matter	 T.VOC Index	 Carbon Dioxide	 Sound Level Meter

SENSOR DECK MODULE

The Sensor Deck is an optional expansion module that extends the sensing capabilities of Aernode. It allows integration of up to 4 additional sensors on **Aernode LITE**, and up to 8 on **Aernode PRO**.

 **AERNODE LITE** ● ● ● ●

 **AERNODE PRO** ● ● ● ● ● ● ● ●

 Nitrogen Dioxide	 Ozone	 Carbon Monoxide	 Sulfur Dioxide	 Hydrocyanic Acid
 Hydrogen Sulfide	 Ethylene Oxide	 Nitrogen Monoxide	 Chlorine	 Hydrochloric Acid
 Phosphine	 Hydrogen Peroxide	 Ammonia	 Volatile Organic Compounds	



INSTALLATION

Aernode devices are designed for quick installation and rapid deployment. They can be mounted in a variety of urban and industrial environments: no complex infrastructure or specialized tools required.



Traffic Light Pole



Field Tripod



Urban Furniture



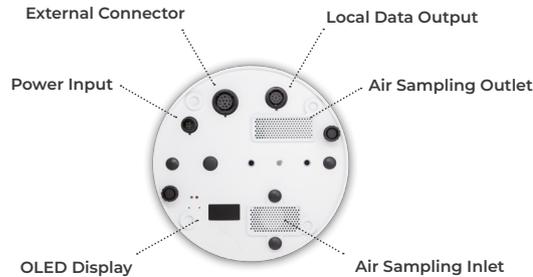
Wall Mount



Public Lighting



Building Facade



Multiband Cellular

For wide-area mobile data, or Modbus RTU for local industrial communication



Plug-and-play installation

Aernode can be deployed in most settings with just a basic power connection



Accessories

Solar panels, mounting brackets, and tripods to support your installation needs

SERVICING

Smart Maintenance, Minimal Downtime.

Designed for maximum efficiency with flexible servicing options tailored to your needs.



In-Field Sensor Kit Replacement



Best for fleet-wide servicing and minimizing operational disruption



In-Lab Single Sensor Replacement



Cost-effective option for targeted servicing



Remote Management

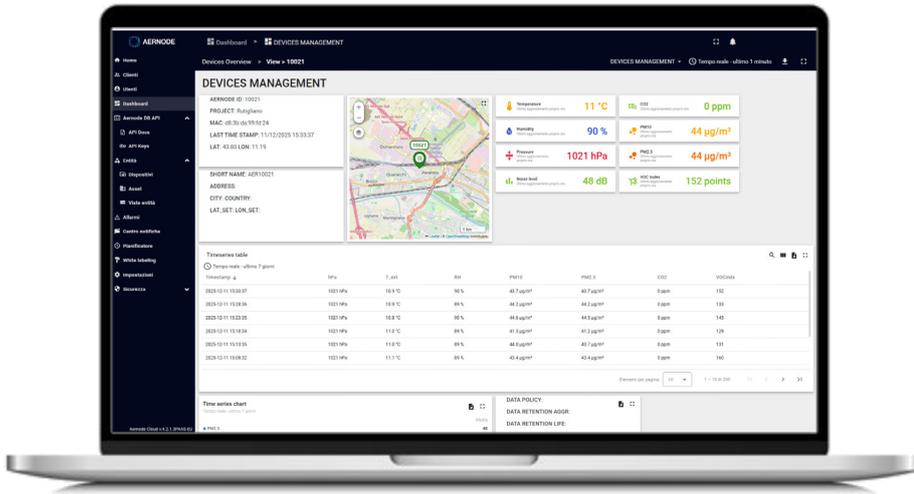
Configure, monitor, and troubleshoot your devices without on-site visits. Remote capabilities include: Provisioning & diagnostics, transmission settings and firmware updates. This reduces downtime, cuts costs, and enables scalable deployment across large networks.

DATA MANAGEMENT

Connect devices to any data management platform, or leverage our out-of-the-box solution

Aernode Cloud gives you complete control over your monitoring network: configure devices, manage fleets, apply calibrations, and monitor performance in real time.

Export historical data for reporting and integrate seamlessly with external systems via secure APIs.



Aernode Database

Centralized data backbone for ingestion, storage, and post-processing



Aernode Web App

Operational interface for network supervision and configuration



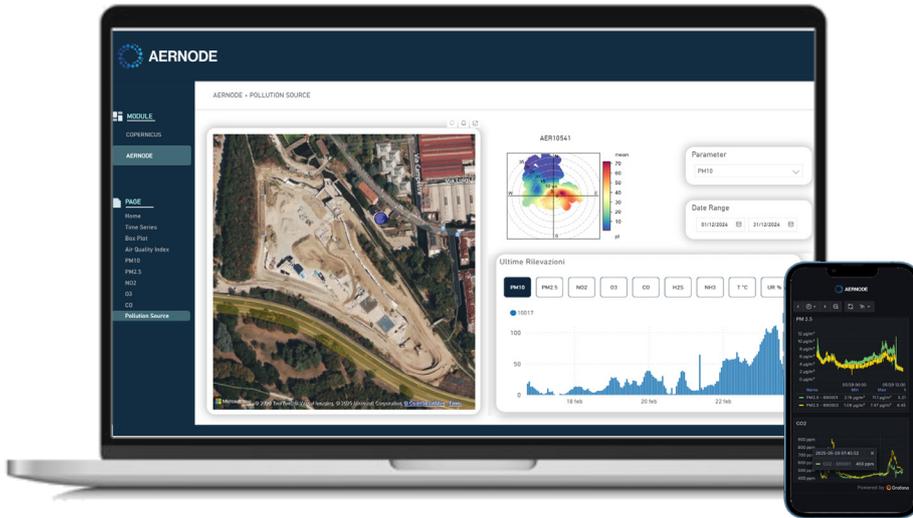
Aernode API

Secure data access and integration layer

DATA REPORTING TOOLS

Transform Air Quality Data Into Actionable Insights

We provide a suite of web-based tools for air quality visualization, reporting, and communication. From private dashboards for advanced analytics to public-facing views for stakeholder engagement, our platform supports both internal decision-making and external transparency.



Private Dashboards & Analytics

Secure, user-specific dashboards for detailed analysis, custom filters, and advanced metrics



Public Sharing & Communication

Share dashboards publicly to increase transparency, inform stakeholders, and support community awareness.

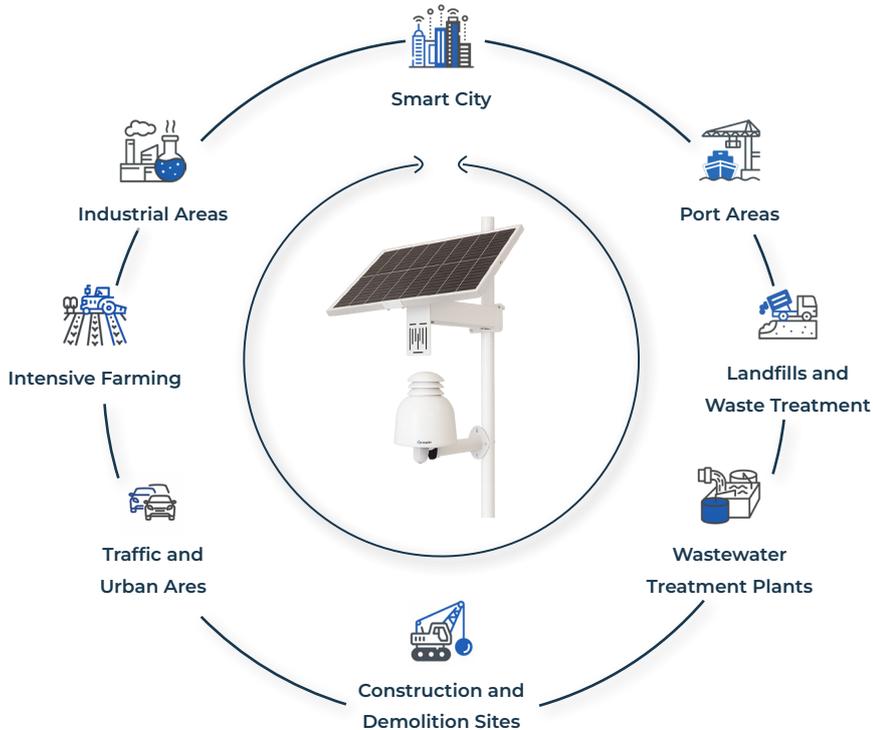


Automated Reporting & Alerts

Scheduled reports and automated alerts on threshold exceedances and network operations.

APPLICATIONS

Designed for adaptability, the monitoring system can be deployed across diverse outdoor environments, supporting a broad range of air quality monitoring scenarios.



Continuous Ambient Air Measurement

A scalable, modular solution designed to monitor a wide spectrum of pollutants



Odor Control

Track short-term gas variations commonly associated with odor events



Pollution Source Monitoring

Monitor pollution hotspots and analyze dispersion dynamics

Designed for adaptability, Aernode can be deployed across a wide range of outdoor environments, supporting multiple air quality monitoring scenarios. The system architecture meets the performance criteria for indicative measurements under [Directive 2024/2881/EC](#) enabling the collection of reliable data for operational and research applications.

	 Smart City	 Industrial Areas	 Wastewater Treatment Plants	 Traffic and Urban Areas	 Landfills and Waste Treatment	 Port Areas	 Intensive Farming	 Construction & Demolition Sites
PM	●	●	●	●	●	●	●	●
Noise (dB)				●				●
T.VOC Index		●	●		●		●	
NO ₂	●	●	●	●	●	●	●	●
O ₃	●			●	●		●	
CO	●	●		●		●		●
SO ₂		●				●		
NO		●	●	●	●	●		●
H ₂ S		●	●		●		●	
NH ₃							●	
T.VOC Pid		●	●		●		●	

A complete suite of services is available to support every stage of an air quality monitoring project: from deployment to data analysis.



Training & Onboarding

Hands-on programs to equip your team with the knowledge needed to operate, interpret, and manage air quality monitoring systems.



Sensors Maintenance

Flexible in-lab and field-based servicing options tailored to your needs, ensuring long-term reliability and accuracy.



Data Analysis & Report

Advanced analytics and reporting services to help you extract insights and inform air quality decisions.



Set-Up & Configuration

Expert support to configure and deploy monitoring networks tailored to your application, environment, and connectivity needs.



Remote Diagnostic

Continuous assistance for remote troubleshooting, firmware updates, and network monitoring, minimizing down-time and site visits.



Dashboard Customization

Tailored support for setting up public or private dashboards, aligned with your reporting and stakeholder engagement needs.



SENSOR SPECIFICATIONS

	Sensors	Sensor Type	Measurement Range ¹	Recommended Measurement Range ²			LOC ⁴		LOD Limit of Detection ⁴	Optimal RH Range ⁵	Operating °C Range ⁶
	Air Temperature	Solid State	- 40 +80 °C	- 20 +80 °C			n.a.		n.a.	n.a.	n.a.
	Relative Humidity	Solid State	0-100 %	0-100 %			n.a.		n.a.	n.a.	n.a.
	Atmospheric Pressure	Solid State	300 to 1,100 hPa	500 to 1,100 hPa			n.a.		n.a.	0-100	-20 +70 °C
	PM 10 - 4 - 2.5 - 1 ^{(6) (7)}	Optical Particle Counter	0-1,000 µg/m ³	0-1,000 µg/m ³			n.a.		1 µg/m ³	0-80 ⁽⁶⁾ 0-95 ⁽⁷⁾	-10 +50 °C ⁽⁶⁾ -20 +70 °C ⁽⁷⁾
	Sound Level Meter	Phonometer (class 2)	30- 20 dB	30-120 dB			n.a.		30 dB	n.a.	n.a.
	T.VOC (Index)	MOX	1 - 500 Index pts	1-500 Index pts			n.a.		0.05 ppm	0-90 %	-10 +50 °C
	CO ₂	NDIR	400 - 5,000 ppm	400 - 5,000 ppm			n.a.		400 ppm	15-90 %	-30 +50 °C
	NO ₂	Electrochemical	0-20 ppm	0-540 ppb	0-1,000 µg/m ³	20 ppb	38 µg/m ³	5 ppb	9.4 µg/m ³	15-85 %	-30 +50 °C
	O ₃	Electrochemical	0-20 ppm	0-400 ppb	0-800 µg/m ³	20 ppb	40 µg/m ³	5 ppb	10 µg/m ³	15-85 %	-30 +40 °C
	CO	Electrochemical	0-500 ppm	0-10 ppm	0-11.5 mg/m ³	500 ppb	570 µg/m ³	110 ppb	115 µg/m ³	15-90 %	-30 +50 °C
	SO ₂	Electrochemical	0-50 ppm	0-488 ppb	0-1,250 µg/m ³	20 ppb	52 µg/m ³	5 ppb	13 µg/m ³	15-90 %	-30 +50 °C
	NO	Electrochemical	0-20 ppm	0-650 ppb	0-800 µg/m ³	200 ppb	250 µg/m ³	80 ppb	100 µg/m ³	15-90 %	-30 +50 °C
	H ₂ S	Electrochemical	0-50 ppm	0-570 ppb	0-800 µg/m ³	25 ppb	35 µg/m ³	5 ppb	7 µg/m ³	15-90 %	-30 +50 °C
	T.VOC	PID	0-20 ppm	-			1 ppb		1 ppb	0-95 %	-20 +60 °C

● Base Station
 ● Core Sensor Board
 ● Sensor Deck Module

- Measurement range:** concentration range measured by the sensor. It defines the limits within which the sensor can operate without suffering permanent damage or significant loss of linearity;
- Recommended measurement range:** It defines the concentration range within which the sensor operates with optimal accuracy, stability, and data quality;
- LOC (Lowest Operational Concentration):** the recommended lowest concentration for operational field use, considering sensor drift, cross-sensitivities, and environmental effects; measurement uncertainty increases below this level;
- LOD (Limit of Detection):** the limit of detection is the minimum concentration that can be detected as significantly different at zero gas concentration
- Optimal humidity range (recommended humidity range):** the range of humidity levels within which the sensor is designed to operate safely and provide accurate measurements.
- Operating temperature range:** the temperature range within which the sensor can operate safely and provide accurate measurements.



KEY BENEFITS

Designed for real-world deployments, Aernode combines flexibility, reliability, and seamless integration to support projects of any size or complexity.



Modular System Design

Aernode's modular hardware and flexible sensor architecture let you tailor each device to the specific needs of urban, industrial, or environmental monitoring.



Customizable for Any Application

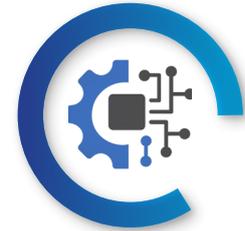


Easy Servicing & Maintenance

Tool-free sensor replacement and versatile service options reduce maintenance effort, cut downtime, and lower total cost of ownership over time.



Lower Downtime, Lower Costs



Open Architecture

Connect to your existing infrastructure or use our turnkey data and reporting tools. Aernode adapts to your system, not the other way around.



Flexible Integration or Turnkey Use



WORK WITH AERNODE

DISCOVER OUR PARTNER PROGRAM

JOIN A GLOBAL NETWORK OF INNOVATION. PARTNER WITH US TO EXPAND ACCESS TO SCALABLE AIR QUALITY SOLUTIONS WORLDWIDE.

PARTNER PROFILES

Aernode supports multiple models of commercial partnership: channel distribution, value-added reselling, system integration, OEM and white-label, and referral or agency arrangements.



Distributors



MaaS
Providers



OEM Partners &
System Integrators



Consultants &
Agencies



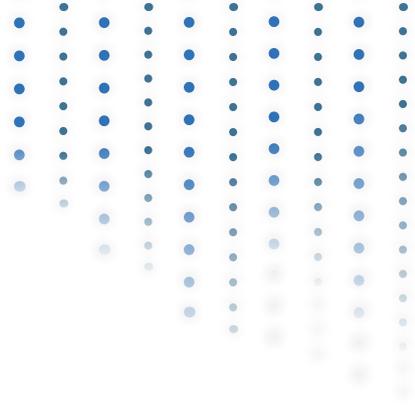
INNOVATION AND RELIABILITY FOR INDUSTRY AND THE ENVIRONMENT



AERNODE

Outdoor Air Quality Monitoring

Solutions for Continuous Ambient Air Measurement



Quanta S.r.l.

 Via A. Ferrarin 19 - 23, 50145 Firenze (FI), Italy

 Phone : + 39 055 3024555

 e-mail : aernode@quanta.it

 website : www.quanta.it

 www.aernode.io

 aernode@quanta.it