Air Quality Sensors

ANMD-MRS18-171 · Environmental AI Applications

A Global Sustainability Due Diligence & Market Research Study

History 2020–2024 · Base Year 2025 · Forecast 2025–2032 · Outlooks 2035 / 2040 / 2050 · Currency US$

WHY THIS REPORT

Air quality sensors measure pollutants — particulate matter, NO■, ozone and other gases — across outdoor networks, indoor spaces, industrial sites and wearables. Spanning electrochemical, optical particulate, NDIR and metal-oxide low-cost sensors alongside reference-grade instruments, they turn invisible pollution into actionable data. The pay-off is measurable: dense real-time air-quality intelligence for public health, regulation, smart cities and personal exposure. This report is a comprehensive, decision-grade study of the air quality sensor market across sensor technology, deployment, application, end-user, scale, ownership and business model, spanning history 2020–2024, a 2025 base year, a 2025–2032 forecast and long-term outlooks to 2035, 2040 and 2050. This decision-grade study sizes the global market three ways — value, deployed units and monitoring coverage — across segmentation, seven regions and four scenarios to 2032, with outlooks to 2050.

SUSTAINABILITY & SDG IMPACT — THE ANMD LENS

The sustainability case here is public health and environmental. Air-quality data enables exposure reduction, regulation and cleaner cities, while raising data-quality and equity questions. The analysis applies double materiality, maps outcomes to GRI, SASB, ISSB, TCFD, TNFD, CSRD and the EU Taxonomy, and Data-quality and misinformation risk, sensor electronic-waste, and monitoring-equity gaps are treated as material risks — with greenwashing and SDG-washing screens applied throughout.

Mapped Sustainable Development Goals:

SDG 3	SDG 11	SDG 13
Good Health & Well-being	Sustainable Cities	Climate Action

Measurable sustainability outcomes assessed:

- Reduced pollution exposure and health protection
- Regulatory monitoring and cleaner cities
- Dense, validated air-quality intelligence
- Data quality, calibration and equity of coverage as material risks

Framework alignment: Double materiality mapped to GRI, SASB, ISSB, TCFD, TNFD, CSRD and the EU Taxonomy, with greenwashing and SDG-washing screens applied throughout.

WHAT'S INSIDE AT A GLANCE

53 Chapters	**9** Report Parts	**7** Regions Covered	**40+** Country Markets
2025–32 Forecast Horizon	**4** Forward Scenarios	**25+** Companies Profiled	**3** SDGs Mapped

REPORT COVERAGE

Geographic scope: North America, Europe, Asia Pacific, Latin America, Africa, Middle East and Rest of World — with named country intelligence. North America and Europe lead regulatory and smart-city deployment; Asia Pacific scales dense low-cost networks; other regions assessed on their own merits.

MARKET OVERVIEW

From sparse reference stations to dense, validated, IoT-connected networks.

Air quality sensing is moving from sparse reference stations to dense, low-cost, IoT-connected networks. Demand is driven by health awareness, smart-city programmes and tightening air-quality regulation across North America, Europe and Asia Pacific. The market is read three ways — value, deployed units and monitoring coverage — and forecast under four scenarios (conservative, base, accelerated and disruption), each region reported separately.

- **North America leads adoption** — supported by regulatory monitoring, smart-city deployments and a strong sensor-technology vendor base.
- **Asia Pacific drives volume** — led by China and India, where severe air pollution and government programmes fund large monitoring networks.
- **Europe scales on regulation** — anchored by EU air-quality directives and dense urban and industrial monitoring.
- **Sensor technology segments the value** — across electrochemical, optical, NDIR, metal-oxide and reference-grade designs, each with distinct accuracy and cost economics.

REGIONAL OUTLOOK

Across seven reporting regions, the report separates commercialisation and supply leaders from high-growth and emerging markets — each profiled in full rather than aggregated into Rest of World.

Region	Stage	Lead Markets & Drivers
North America	Adoption leader	United States, Canada — regulation, funding, tech-vendor base
Asia Pacific	Volume driver	China, India, Japan — severe pollution, monitoring programmes
Europe	Regulation-led	Germany, France, UK, Netherlands — environmental rules, CSRD, climate funding
Middle East	Strategy-led	Saudi Arabia, UAE — environmental strategy, sovereign investment
Latin America	Emerging	Brazil, Chile — biodiversity, deforestation, climate risk
Africa	Frontier	South Africa, Kenya — conservation, climate adaptation, blended finance

KEY MARKET DRIVERS & RESTRAINTS

Drivers	Restraints
• Health awareness & exposure concern	• Low-cost-sensor accuracy & drift
• Smart-city & dense-network demand	• Calibration & data-quality burden
• Tightening air-quality regulation	• Standardisation & validation gaps
• Low-cost & IoT sensor advances	• Sensor lifetime & maintenance
• Indoor air-quality & wearable growth	• Data-management & integration complexity

SEGMENTATION SNAPSHOT

By Sensor Technology	Electrochemical · optical (PM) · NDIR · metal-oxide (MOS) · reference-grade
By Deployment	Outdoor networks · indoor air quality · industrial · wearable
By Application	Outdoor networks · indoor air quality · industrial · wearable
By End User	Cities · industry · buildings · researchers · consumers
By Business Model	Hardware sale · SaaS · data · managed service
By Scale	Pilot · deployment · enterprise / national-scale

TABLE OF CONTENTS — PARTS & CHAPTERS

The full report is organised into nine parts across 53 chapters, listed below. Detailed sub-headings, country tables and directories are provided in the full report.

COMPETITIVE & INVESTMENT SNAPSHOT

The competitive field spans dedicated air-quality specialists, instrumentation and automation majors, and low-cost-sensor innovators.

Representative players profiled in the full report:

Aeroqual Limited · TSI Incorporated · Honeywell International Inc. · Siemens AG · Thermo Fisher Scientific Inc. · and 20+ further profiled players across instrumentation majors and low-cost-sensor innovators.

Investment intelligence: venture, infrastructure, development, climate and blended finance, green bonds and sustainability-linked loans — culminating in a bankability assessment and a clear, decision-ready investment verdict.

KEY QUESTIONS THIS REPORT ANSWERS

? How large is the global air quality sensors market, and how fast will it grow to 2032?
? Which regions, countries and segments offer the strongest risk-adjusted opportunity?
? How does low-cost dense sensing change air-quality value versus reference-grade stations alone?
? Who leads, and where is the competitive and patent white space?
? Is the investment case bankable — and under what conditions?
? How does the category align with the SDGs, circular-economy and resource-security and disclosure regulation?

WHY ANMD — THE DIFFERENCE

Most market studies stop at units and revenue. This report is built as a sustainability due diligence instrument — fusing market sizing with ESG, SDG, climate, water and natural-capital intelligence and a decision-ready bankability verdict in a single architecture.

- **Triangulated sizing** — every market read three ways (value, deployed units and monitoring coverage) so value-led and volume-led views reconcile rather than conflict.
- **Region-honest forecasting** — Latin America, Africa and the Middle East reported in full, never hidden inside Rest of World, every forecast resolved to the 2025 base year.
- **Integrated evidence base** — company, patent and project databases linked to the analysis, with published-filing patents and FTO treated as an indicator, not a legal conclusion.
- **No-fabrication discipline** — every estimate carries a data-confidence rating and disclosed sources; gaps are flagged for further diligence, never filled with invented numbers.
- **Anti-greenwashing rigour** — SDG-washing and greenwashing screens plus claim-substantiation checks built into the ESG and project analysis.
- **Decision-first structure** — 9 Parts and 53 Chapters culminating in stakeholder playbooks and a clear, decision-ready investment verdict.

WHO SHOULD BUY THIS REPORT

Investors and climate-tech / PE funds, cities and environmental agencies, instrumentation OEMs and integrators, industrial and building operators, regulators and standards bodies, and corporate strategy and ESG teams.

Access the Full Report

The complete report delivers all 53 chapters in full, with every sub-heading, country table, company and patent directory, forecast model and due diligence checklist.

Purchase at **www.anewmarketdynamics.com** · Standard & Premium licences · Single-Site (SSL) and Global-Site (GSL) options at checkout.

Want the Complete Detailed Table of Contents?

This prospectus lists the nine parts and 53 chapters. The complete detailed table of contents — every sub-heading, country table, exhibit, company and patent directory and annex — is available on request to registered users. To receive it, register with your official company email at **www.anewmarketdynamics.com**. The full detailed table of contents will be sent directly to your registered company email address.