



Environmental Monitoring

Integrated solutions for smart cities



acoem

ENVIRONMENT

acoemgroup.com

Smart Thinking

The ACOEM Group is a global leader in providing sustainable solutions for the development of smart cities of the future.

ACOEM brings together two respected leaders in the fields of environmental monitoring – 01dB and ECOTECH – creating the first globally integrated offering of products and services across noise, vibration, air, dust and water quality monitoring.

CONNECTING ENVIRONMENTAL AND ECONOMIC SUSTAINABILITY

Smart cities of the 21st century are being built on a foundation of innovation not only in their infrastructure and technology, but also in overall management and sustainability policies.

Today, the quality of water and air, the movement of people and objects, the changes in weather, noise and vibration, and the production and consumption of energy are all measured by sensors – monitored and interconnected through networks in real time.

It is this level of connectivity that differentiates ACOEM solutions and leads to the creation of a true smart city, one where digital technology is integrated with construction, energy and transport innovations to ensure long-term sustainability for the city, its resources and its population.

SOLVING PROBLEMS AND DEVELOPING CONNECTED SOLUTIONS TO HELP SMART CITIES MAKE DECISIONS

With ACOEM offices in France, Australia, Sweden, Germany, Italy, Hungary, India, China, Thailand, Brazil, USA and a network of distributors around the world, ACOEM has a global reach that extends across projects in 80+ countries.

ACOEM designs, develops, implements and maintains fully-integrated measurement and monitoring systems that deliver real-time quantifiable data to help industries, cities and government agencies plan for the future, comply with regulations and limit their environmental impact.



Project Highlights

KUALA LUMPUR, MALAYSIA

Leading environmental monitoring on Asia's largest railway project – MRT Line 2

ACOEM's o1dB partnered with Klang Valley MRT construction contractors, to provide ongoing noise and vibration monitoring for the Sungai Buloh–Serdang–Putrajaya Mass Rapid Transit Corporation (MRT) Line 2, a fully automated and driverless rail system on Kuala Lumpur's massive rail transport network.

Using its proprietary ORION™ system, construction-related noise and vibration were monitored on site, in one stand-alone, portable instrument producing accessible data that was immediate and identified the quantifiable relationship between noise and vibration.



NEW DELHI, INDIA

Cementing its reputation as the environmental monitoring provider of choice in India

In 2018, the Delhi Pollution Control Committee (DPCC) made one of the largest investments in air quality monitoring technology ever made by an environmental agency in India by deploying an additional 20 Continuous Ambient Air Quality Monitoring Stations (CAAQMS) designed, manufactured, installed and commissioned by ECOTECH.

Across the sub-continent, ECOTECH operates, maintains and collects data from more than 100+ CAAQMS systems; comprising hundreds of individual pieces of equipment; recording thousands of environmental monitoring data sets.

Through ECOTECH, ACOEM empowers dozens of Indian state pollution control committees, businesses and industries to meet their air quality analysis and reporting obligations every day, 365 days a year.



LOS ANGELES, USA

Setting the reference quality benchmark for small sensor technologies

American ECOTECH has developed a world-first Small Sensor Environmental Test Chamber that relies on reference quality ECOTECH Serinus® gas analysers (SO₂, O₃, CO, H₂O and NO) to accurately mimic global ambient environmental conditions.

With the growing number of low cost, near-reference and/or small sensors entering the marketing, the South Coast Air Quality Management District (SCAQMD) in Southern California was looking for a cost-effective, reliable and fast-track way to test small sensors under a variety of different environmental conditions.



BANGKOK, THAILAND

Ensuring construction compliance with environmental regulations

Noise can often be the first sign of danger, especially in the context of huge construction projects. o1dB's ORION™ and DUO™ smart vibration monitor and sound level meters have a proven track record in the development of multiple high-rise projects in the downtown Bangkok area.

The Pollution Control Department (PCD) has relied on o1dB to perform on-site monitoring for the duration of piling works to measure PCPV and resultant PPV for assessing structural damage and potential vibration impact on neighbouring residential buildings in line with Thailand's DIN4150 & 5669 standards.



SYDNEY, AUSTRALIA

Monitoring air quality on Australia's biggest infrastructure project

Once completed, Sydney's massive WestConnex and NorthConnex motorways will revolutionise the way Sydney's road and transport networks operate, including the construction of the country's two longest tunnels.

Tailored air quality tunnel monitoring solutions engineered by ECOTECH help monitor the air quality and safety of workers, drivers, passengers and the community before, during and long after tunnel construction is completed.

ECOTECH is designing, manufacturing, installing and commissioning dozens of Serinus® equipped complete ambient stations, 50+ air quality sensors, 100+ air velocity sensors and at least 5 ventilation outlets (CEMS) for this major tunnel construction project.

World-class technology supported by local knowledge & decades of global expertise

- Noise & Vibration Monitoring
- Gas Analysers & Calibrators
- Dust & Particulate Monitoring
- Integrated Systems

Noise & Vibration Monitoring

ORION™

Smart Vibration Monitoring Terminal

An all-in-one vibration monitoring system with integrated sensor, 3G modem, WiFi and GPS. It is robust, waterproof, easy to configure and use, and features seven measurement channels and smart integration of vibration standards.

DUO™

Sound Level Meter & Monitoring Station

All-in-one: FUSION™ and CUBE™ in a single instrument. DUO™ is completely modular with a comprehensive range of options that lets you use it either as a sound level meter or a fully-fledged noise monitoring station.

FUSION™

Smart Sound & Vibration Analyser

The first sound level meter to offer completely wireless vibration measurement. Connect FUSION™ to a powerful vibration sensor and it will record and store 3-axis vibrations in parallel, audio signals and all noise indicators.

CUBE™

Smart Noise Monitoring Terminal

Designed to fit into a variety of different casings, from fixed plastic or metal cabinets to portable weatherproof cases. Antennas (WiFi, 3G and GPS) are easily connected via three accessible ports which can be relocated to the exterior of the casing.



FUSION™ Smart Sound & Vibration Analyser

DUO™ Sound Level Meter & Monitoring Station



Orion™ Smart Vibration Monitoring Terminal



CUBE™ Smart Noise Monitoring Terminal



Gas Analysers & Calibrators

The ECOTECH range of Serinus® gas analysers & calibrators has been designed using our experience and knowledge gained from operating large air quality monitoring networks for more than 40 years.



SERINUS® CAL 1000, 2000 & 3000
Gas Calibrators

SERINUS® 10

Ozone Analyser
(O₃)

SERINUS® 30

Carbon Monoxide Analyser
(CO)

SERINUS® 40

Oxides of Nitrogen Analyser
(NO, NO₂, NO_x)

SERINUS® 44

Ammonia Analyser
(NO, NO₂, NO_x, NH₃)

SERINUS® 50

Sulfur Dioxide Analyser
(SO₂)

SERINUS® 51

Sulfur Dioxide & Hydrogen Sulfide Analyser
(SO₂, H₂S)

SERINUS® 55

Hydrogen Sulfide Analyser
(H₂S)

SERINUS® 56

Total Sulfur Analyser
(TS)

SERINUS® 57

Total Reduced Sulfur Analyser
(TRS)

SERINUS® 60

Nitrogen Dioxide Analyser
(NO₂)

Dust & Particulate Monitoring

With more than 25 different particulate monitors to choose from in the entire ECOTECH range, the Neighbourhood Monitor, Exactus™ BAM and Spirant™ BAM are three examples of the latest particulate monitoring technology to incorporate the following features:

- Solar or mains powered
- Totally self-contained system*
- Integrated weatherproof enclosure*
- Remote communications
- Nomadic relocation
- Rapid redeployment
- Minimal site preparation
- Cloud based data options
- Short time average continuous data
- 1 min intervals if required
- TSP, PM₁₀, PM_{2.5} size selective inlets.



Exactus™ BAM
Real-time Particulate Monitor



MICROVOL™ 1100
Low Volume Air Sampler



HIVOL™ 3000
High Volume Air Sampler



Spirant BAM™ Particulate Monitor

NEIGHBOURHOOD MONITOR

- Low cost dust management monitor
- Rugged & lightweight
- Highly portable
- Internal GPS
- Minimal servicing
- Plug & play set up.

EXACTUS™ BAM / E-BAM PLUS (PM₁₀)

- Compliance monitor for PM₁₀
- US EPA designation
- Emergency responder
- Deployable in 15 mins
- Fence line monitoring
- Lightweight & rugged construction.

SPIRANT™ BAM

- Compliance monitors
- US EPA designation
- Air quality networks
- TSP, PM₁₀, PM_{2.5} sample inlets available
- Easier to service, enhanced reliability & lower power consumption than competing instruments
- Almost 60 mins of sampling per hour delivers improved sensitivity and time resolution.

MICROVOL™ 1100 LOW VOLUME AIR SAMPLER

- PM₁₀, PM_{2.5} or TSP
- Flexible sampling platform for particulates and basic meteorological parameters
- Light weight, rugged weatherproof
- Indoor & outdoor applications
- Wind direction & speed used to activate/de-activate sampler
- Quiet operation, ultra-efficient, long life DC pump
- Optional battery or solar power.

HIVOL™ 3000 HIGH VOLUME AIR SAMPLER

- PM_{2.5}, PM₁₀ or TSP
- Remote unattended sampling along with basic meteorological parameters
- US EPA approved
- Only high volume sampler with CE and C-tick approval
- Volumetric flow control automatically corrected to standard reference temperature
- Programmable reference temperatures
- Industrial brushless motors (100k hours continuous field operation)
- Weatherproof marine quality anodised aluminium cabinet
- Wind direction & speed used to activate/de-activate sampler
- Simple programming of sampling periods & remote control from PC.

Integrated Systems

Designed to withstand the toughest environments from urban cities and industrial sites to tropical rainforests and frozen landscapes, ECOTECH designs integrated systems to meet the demands of unique environmental monitoring applications.

ECOTECH designs, manufactures, installs, commissions and maintains bespoke integrated systems throughout the world including:

- Ambient Air Quality Monitoring Systems
- Trace/Background Air Monitoring Systems
- Water Quality Monitoring Systems
- Tunnel & Roadside Monitoring Systems
- Blast Monitoring Systems
- Continuous Emissions Monitoring Systems (CEMS)
- Solar, battery or mains powered Particulate Monitoring Systems
- Custom-designed Shelters to house Monitoring Systems
- Integro™ LIDAR Network Dust Measurement & Monitoring System.



Exactus BAM Solar



Large walk-in shelter



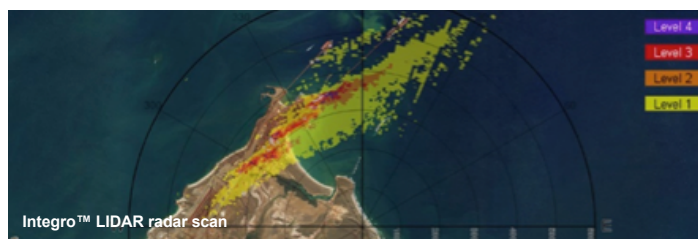
20ft shipping container shelter



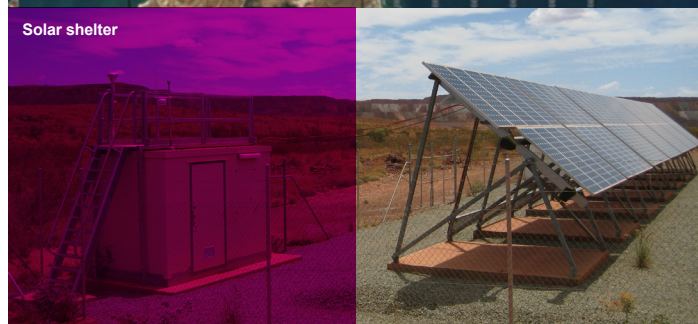
Mobile shelter



Polar Shelter



Integro™ LIDAR radar scan



Solar shelter



Technology is Only the Beginning

Noise, vibration, air, dust and water quality solutions engineered by ACOEM seamlessly integrate with existing operational systems and management software.

We provide more than just data – ACOEM monitoring solutions offer an accurate yet simple way to monitor, diagnose and make decisions regarding the environmental future of your city.

Although ACOEM's innovation and technology have garnered an international reputation for excellence, backed by comprehensive maintenance and service support on a global scale, the true value and benefits of ACOEM solutions extend far beyond technological superiority.

In this era of rapid change and constant advancement, investing in the “best” technology is not enough to ensure success.



ACOEM's expertise lies in its vast experience across diverse industries and sectors to guide, advise, and deliver the right integrated monitoring solution beyond the initial purchase.

We understand “technology” is just one component of a larger, more complex purchasing equation – a complex formula governed by financial and non-financial considerations that shape what is right for your smart city.



ACOEM ENVIRONMENT

Making the City Smarter

01dB
ECOTECH

Air pollution control

Smart noise & vibration sensors

Environmental pollution monitoring



ACOEM MAINTENANCE

Training Machines to Learn

ONEPROD
FIXTURLASER
MEAX

Machine health diagnosis

Empowered maintenance users

Machine learning algorithms



ACOEM FOR DESIGN

Designing the Future of Mobility

METRAVIB

Lightweight structure

Remaining useful life

Energy efficiency



ACOEM FOR DEFENCE

Enhancing Global Security

METRAVIB

Protection

Threats detection

Situational awareness

About ACOEM: Reduce your environmental impact

The ACOEM Group is a global leader in providing sustainable solutions for the development of smart cities of the future. It is committed to helping companies and public authorities limit their environmental impact to meet the challenges of our fast-moving world by offering products and services that:

- Prevent and control air, noise and vibration pollution
- Increase the productivity and reliability of industrial machinery
- Contribute to the development of effective, robust & noiseless solutions
- Protect soldiers, sites and vehicles in military theatres of operation.

Across the world, ACOEM's 700 employees innovate in the measurement, analysis and control of environmental parameters through its 01dB, ECOTECH, ONEPROD, FIXTURLASER, MEAX and METRAVIB brands.

About 01dB: Smart noise & vibration monitoring

Experts in noise and vibration monitoring, 01dB helps smart cities; ground and air transportation networks; public works; industrial and construction sectors; and wind power and leisure industries comply with regulations and develop sustainable strategies. 01dB is part of the ACOEM Group.

About ECOTECH: Together we create solutions that shape the future

For over 40 years ECOTECH has pioneered innovative solutions in environmental monitoring for air, water, gas, blast, fine particulate and dust. Headquartered in Australia, and certified to internationally recognised quality standards, ECOTECH now operates in more than 80 countries and manages and maintains over 450 real-time environmental monitoring sites consisting of thousands of individual pieces of precision equipment. ECOTECH is part of the ACOEM Group.

For more information about smart cities solutions by ACOEM visit our websites.

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