Environmental Monitoring

Solution Snapshot ECOTECH India

Ecotech

ACOEM Group

ecotech.com

ECOTECH Excellence

ECOTECH has pioneered innovative solutions in environmental monitoring for 40+ years and is a global leader in the design, manufacture, operation and maintenance of air, gas, water, meteorology, blast, fine particulate and dust monitoring systems.

Headquartered in Melbourne, Australia, ECOTECH has a global footprint across 80+ countries with world-class manufacturing facilities (certified to ISO 9001 Quality Management standard) in India and Australia, and NATA accreditation for a range of testing and calibration services.

ECOTECH India's manufacturing operation (ECOTECH Industries Pvt Ltd) is based in Indore, Madhya Pradesh. ECOTECH Monitoring Solutions Pvt Ltd is centrally located in Hyderabad, Telangana and provides operation and maintenance (O&M) services to more than 70 government and non-government organisations across India including:

- Central & state pollution control boards
- Gas & thermal power plants
- Cement sector
- Chemical & fertiliser industry
- Mining sector
- Steel & metal industry
- Oil & gas industry
- Petrochemical sector
- General industrial sector
- Universities & environmental research institutes.

ECOTECH is part of the ACOEM Group, a global enterprise committed to sustainable development and helping companies and public authorities limit their environmental impact.

Solution Snapshot

1 GAS ANALYSERS

Serinus® 10	Ozone (O_3)
Serinus® 30	Carbon Monoxide (CO)
Serinus® 40	Oxides of Nitrogen (NO, NO_2, NO_x)
Serinus® 44	Ammonia (NO, NO_2, NO_x, NH_3)
Serinus® 50	Sulfur Dioxide (SO_2)
Serinus® 51	Sulfur Dioxide & Hydrogen Sulfide (SO_2, H_2S)
Serinus® 55	Hydrogen Sulfide (H_2S)
Serinus® 56	Total Sulfur (TS)
Serinus® 57	Total Reduced Sulfur (TRS)
Serinus® 60	Nitrogen Dioxide (NO_2)

2 GAS CALIBRATORS

Serinus® Cal 1000
Serinus® Cal 2000
Serinus® Cal 3000

3 PARTICULATE MONITORING

Neighbourhood Monitor
Exactus™ BAM / E-BAM Plus (PM_{10})
Spirant™ BAM
Certa™ 1100 / Fidas 200S

4 AEROSOL MONITORING & MEASUREMENT

Aurora™ 1000	Clear choice for visibility monitoring
Aurora™ 2000	Real-time mass concentration
Aurora™ 3000	Proven results for long-term monitoring
Aurora™ 4000 Polar	Measuring the aerosol phase function
ACS™ 1000	Innovation in hygroscopic study

5 GREENHOUSE GAS MEASUREMENT

Spectronus™ FTIR
N_2O, CH_4, CO, CO_2 (including $\delta^{13}C$ & $\delta^{18}O$)

6 METEOROLOGICAL SENSORS

Wind Speed & Direction Sensors
Relative Humidity & Temperature Sensors
Solar Radiation Sensors
Barometric Pressure Sensors
Precipitation Sensors
Visibility Monitors

7 INTEGRATED SYSTEMS

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

8 NOISE & VIBRATION MONITORING

ORION™	Smart Vibration Monitoring Terminal
DUO™	Sound Level Meter & Monitoring Station
FUSION™	Smart Sound & Vibration Analyser
CUBE™	Smart Noise Monitoring Terminal

9 SOFTWARE & HARDWARE SOLUTIONS

WinAQMS™	Data Acquisition & Control System
Airodis™	Data Collection, Validation & Reporting
AMS™	Asset Management System

10 OPERATION & MAINTENANCE

ACOEM ENVIRONMENT
ECOTECH OFFICES

DISTRIBUTORS

MANUFACTURING
FACILITIES

ACOEM
OFFICES

1 | Gas Analysers

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

SERINUS® 10
Ozone Analyser
(O_3)

SERINUS® 30
Carbon Monoxide Analyser
(CO)

SERINUS® 40
Oxides of Nitrogen Analyser
(NO, NO_2, NO_x)

SERINUS® 44
Ammonia Analyser
(NO, NO_2, NO_x, NH_3)

SERINUS® 50
Sulfur Dioxide Analyser
(SO_2)

SERINUS® 51
Sulfur Dioxide &
Hydrogen Sulfide Analyser
(SO_2, H_2S)

SERINUS® 55
Hydrogen Sulfide Analyser
(H_2S)

SERINUS® 56
Total Sulfur Analyser
(TS)

SERINUS® 57
Total Reduced Sulfur Analyser
(TRS)

SERINUS® 60
Nitrogen Dioxide Analyser
(NO_2)

2 | Gas Calibrators

- **Highly flexible: Gas dilution calibrations, ozone analyser precision checks, gas phase titrations and ozone transfer calibrations**

- **New user interface, conceived and designed using customer input, is simple to configure and intuitive to use**

- **Class-leading performance: Accuracy, traceability, repeatability.**

SERINUS® CAL 1000

The Serinus® Cal 1000 performs gas dilution calibrations and is used in conjunction with regulatory traceable gases and a zero air generator.

SERINUS® CAL 2000

With all the features of the Serinus® Cal 1000, the Serinus® Cal 2000 adds features essential for calibrations of NO_x and O_3 analysis equipment. An internal ozone generator enables regular ozone checks and Gas Phase Titrations (GPT).

SERINUS® CAL 3000

With all the features of the Serinus® Cal 1000 and 2000, the Serinus® Cal 3000 adds an ozone photometer for the accurate creation and delivery of ozone concentrations when calibrating ozone analysers.

3 | Particulate Monitoring

With more than 25 different particulate monitors to choose from in the entire ECOTECH range, four examples of the latest particulate monitoring technology 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, PM_{10}, $PM_{2.5}$ size selective inlets.

NEIGHBOURHOOD MONITOR

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

EXACTUS™ BAM / E-BAM PLUS (PM$_{10}$)

- Compliance monitor for PM$_{10}$
- US EPA designation
- AS/NZS standards
- Emergency responder
- Deployable in 15 mins
- Fence line monitoring
- Lightweight & rugged construction.

SPIRANT™ BAM

- Compliance monitors
- US EPA designation
- AS/NZS standards
- Air quality networks
- TSP, PM$_{10}$, 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.

CERTA™ 1100 / FIDAS 200S

- EN certified
- Compliance & research monitoring
- Simultaneous TSP, PM$_{10}$, PM$_{2.5}$, PM$_4$, PM$_1$
- Additional information on basis of particle number concentration
- 64 size channels
- Adjustable time resolution from > 1 sec to 24 hrs
- Reliable function
- Very high data availability > 99 %
- Remote monitoring, maintenance & control
- No consumables
- IP65 enclosure.

4 | Aerosol Monitoring & Measurement

Comprehensive range of ECOTECH Aurora™ nephelometers from single or three wavelength integrating nephelometers to a polar three wavelength integrating nephelometer.

- Total remote control including calibration

- Rugged and robust. Proven capability in remote, unattended locations for long term monitoring

- Fully integrated with Airodis™ data collection, validation and reporting software by ECOTECH

- User friendly and easy to maintain in the field

- Uncompromising performance with low cost of ownership.

AURORA™ 1000
Clear choice for visibility monitoring
Uncompromised in its reliability and designed to run in extreme conditions, the Aurora™ 1000 is a highly cost-effective entry level instrument for any air quality monitoring system.

AURORA™ 2000
Real-time mass concentration
Using a single wavelength nephelometer to measure aerosol light scattering in conjunction with a Spirant™ BAM, the Aurora™ 2000 uses the reading from the Spirant™ BAM's hourly average to calculate a correlation factor to drive real-time $PM_{2.5}$ concentrations. When the Spirant™ BAM is not connected the user can manually derive and enter a correlation factor.

AURORA™ 3000
Proven results for long-term monitoring
The favoured choice of researchers, the Aurora™ 3000 facilitates simultaneous measurement across three wavelengths, enabling wide and in-depth analysis of the interaction between light and aerosols.

AURORA™ 4000 POLAR
Measuring the aerosol phase function
The Aurora™ 4000 Polar provides measurements of light scattering with up to 18 user selectable angular sectors using varied backscatter shutter positioning. This can be used to determine the phase function of aerosols crucial to climate research and modelling.
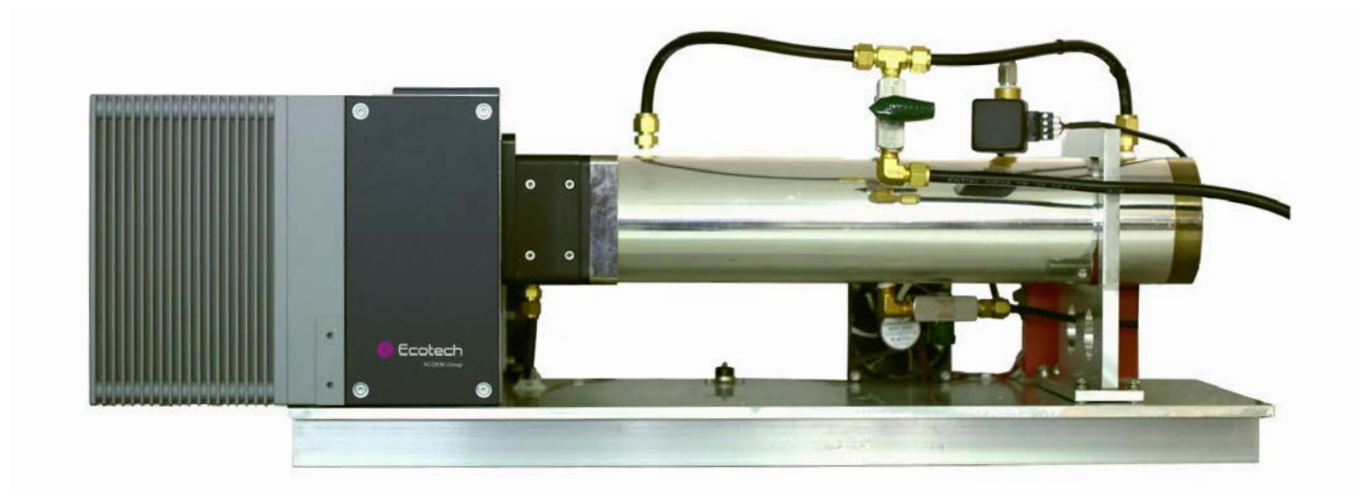
ACS™ 1000
Innovation in hygroscopic study
The Aerosol Condition System (ACS™) 1000 can be used with most aerosol monitoring instruments, adjusting relative humidity with minimal particle loss to measure the effect of water uptake on the properties of aerosols. The ACS 1000 simultaneously controls differing relative humidity levels in two sample channels, allowing real-time measurement by parallel instruments for comparison.

5 | Greenhouse Gas Measurement

Spectronus™ FTIR – Trace Greenhouse Gas and Isotope Analyser Simultaneous & real-time measurement of N_2O, CH_4, CO, CO_2 (including $\delta^{13}C$ & $\delta^{18}O$)

The Spectronus™ FTIR analyser by ECOTECH combines a Fourier Transform Infrared (FTIR) spectrometer, multi-pass gas sample cell and a high performance detector to provide simultaneous measurement of multiple greenhouse gas species with high repeatability and excellent reproducibility without the need for frequent gas calibrations.

6 │ Meteorological Sensors

Meteorological sensors that best suit the climatic and weather conditions of any country.

Meteorological sensors include:

- Wind Speed & Direction Sensors

- Relative Humidity & Temperature Sensors

- Solar Radiation Sensors

- Barometric Pressure Sensors

- Precipitation Sensors

- Visibility Monitors.

7 | 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 design, manufacture, install, commission and maintain 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.
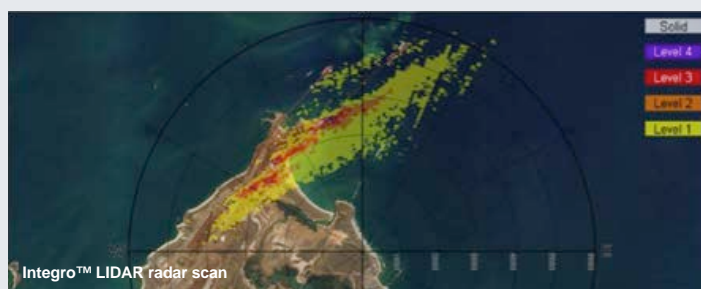
Exactus BAM Solar

Large walk-in shelter

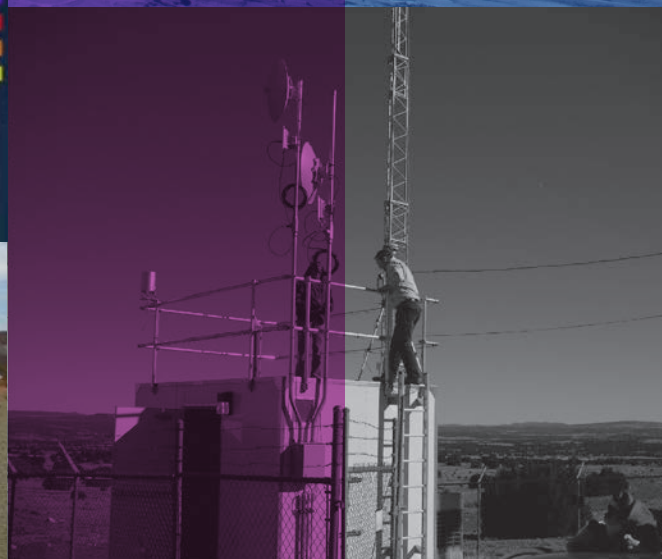20ft shipping container shelter

Mobile shelter

Polar Shelter

Integro™ LIDAR radar scan

Solid
Level 4
Level 3
Level 2
Level 1

Solar shelter

8 | Noise & Vibration Monitoring

ORION™
Smart Vibration Monitoring Terminal

An all-in-one vibration monitoring system with integrated sensor, 3G modem, Wi-Fi 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

Orion™ Smart Vibration
Monitoring Terminal

DUO™ Sound Level Meter
& Monitoring Station

CUBE™ Smart Noise
Monitoring Terminal

9 | Software & Hardware Solutions
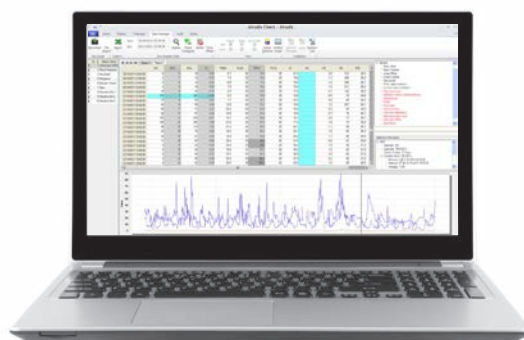
WINAQMS™ DATA ACQUISITION & CONTROL SYSTEM

WinAQMS™ is a software and hardware solution for data collection and control of ambient air and emission monitoring applications. The Windows based system provides full control over an entire monitoring station, enabling readings to be recorded, automatic calibrations to be performed and system errors to be monitored.

AMS™ ASSET MANAGEMENT SYSTEM

Designed to meet the unique operator requirements of complex monitoring networks with tens or hundreds of individual pieces of environmental monitoring equipment, AMS™ provides a critical tool to manage maintenance scheduling down to task level as well as a central point where all relevant calibration and equipment maintenance records can be stored. This greatly facilitates any internal or external audit process and improves access to records for data validation.

AIRODIS™ DATA COLLECTION, VALIDATION & REPORTING

Airodis™ is an environmental data management software package that automates the process of retrieving data from multiple data loggers allowing users to validate data and generate a wide range of reports. Airodis™ is designed to easily manage valuable data and maximise user productivity while ensuring accuracy and traceability.

10 | Operation & Maintenance

Operation and maintenance (O&M) of 80+ Continuous Ambient Air Quality Monitoring Stations (CAAQMS) across India.

ECOTECH Monitoring Solutions Pvt Ltd employ a team of 65+ O&M Technicians managed by factory-trained Engineers across India, all dedicated to Operation and Maintenance.

Data management and reporting centre headquartered in Hyderabad.

ABOUT ECOTECH: Problem solved

Problem solving is in our DNA. For over 40 years ECOTECH has pioneered innovative solutions in environmental monitoring for air, water, gas, meteorology, blast, fine particulate and dust. Headquartered in Australia, we now operate in more than 80 countries, manage over 440 real-time environmental monitoring sites and are certified to internationally recognised quality standards. ECOTECH is part of the ACOEM Group.

ABOUT ACOEM: Reduce your environmental impact

In today's fast-moving world, the environment is increasingly impacted. The ACOEM Group is committed to sustainable development and helping companies and public authorities limit their environmental impact. Across the world, ACOEM's 670 employees innovate in the measurement, analysis and control of all environmental parameters through the 01dB, ECOTECH, ONEPROD, FIXTURLASER, MEAX and METRAVIB brands.
For more information visit acoemgroup.com

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