

# Environmental Monitoring

SOLUTION OVERVIEW



**Met One  
Instruments**

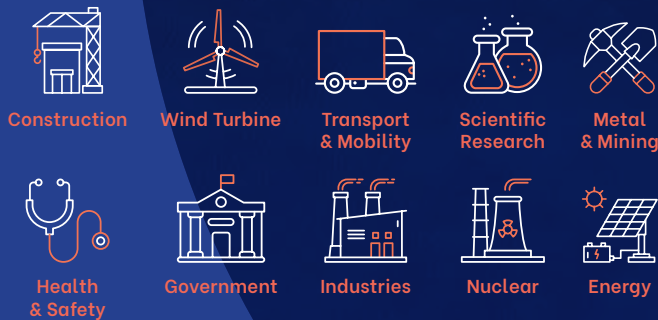
POWERED BY ACOEM


# Creating synergies with a complete range of environmental monitoring technologies

For over 50 years Met One Instruments and Acoem have shared a common vision to enhance environmental productivity and regulatory outcomes for government agencies, industries, and populations around the world.


Together Acoem and Met One have opened up new possibilities through an extensive offering of class-leading, multi-parameter environmental monitoring, and industrial reliability solutions. These integrated measurement technologies and services deliver comprehensive solutions for a range of applications, including environmental research, regulatory compliance, and industrial hygiene.

**At Met One Instruments Powered by Acoem, we create environments of possibility.**



 **Dust & Particulates**



 **Gas Analyzers & Calibrators**



 **Meteorological**




 **Gases & Aerosols**



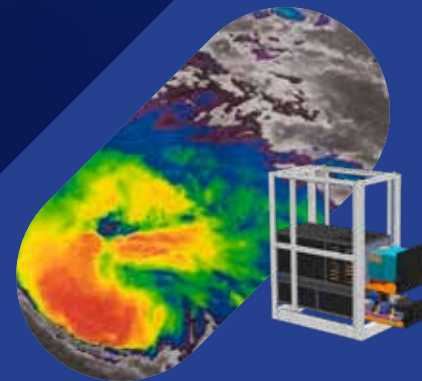
 **Indoor & Controlled Environments**



 **Noise & Vibration**



 **Tunnels & Emissions**



 **Greenhouse Gases**



 **Integrated Systems**



# Dust & Particulates Monitoring

Acoem Met One offers more than 25 particulate monitors that can function in a variety of settings, ranging from bustling urban areas to remote forests. Among our flagship particulate monitoring technologies are the BAM 1020, BAM 1022, and the new Swift flow calibrator. These cutting-edge solutions are equipped with advanced features, including:

- Solar or mains-powered
- Unbiased monitoring
- Totally self-contained system
- Short time average continuous data
- Integrated weatherproof enclosure
- 1 min intervals if required
- Portable and rapid redeployment
- TSP, PM<sub>10</sub>, PM<sub>2.5</sub> size selective inlets
- Remote communications
- Cloud-based data options.
- Minimal site preparation



## E-BAM Plus

- US EPA Designation, PM<sub>10</sub>
- Emergency responder
- Deployable in 15 mins
- Fenceline monitoring
- Lightweight & rugged construction.

## BAM 1020

- Compliance monitoring
- US EPA Designation, PM<sub>2.5</sub>, PM<sub>10</sub> & Coarse
- Air quality networks
- TSP, PM<sub>10</sub>, PM<sub>2.5</sub> sample inlets available
- Easier to service, enhanced reliability & lower power consumption than competing instruments
- Almost 60 mins of sampling per hour delivers improved sensitivity & time resolution.

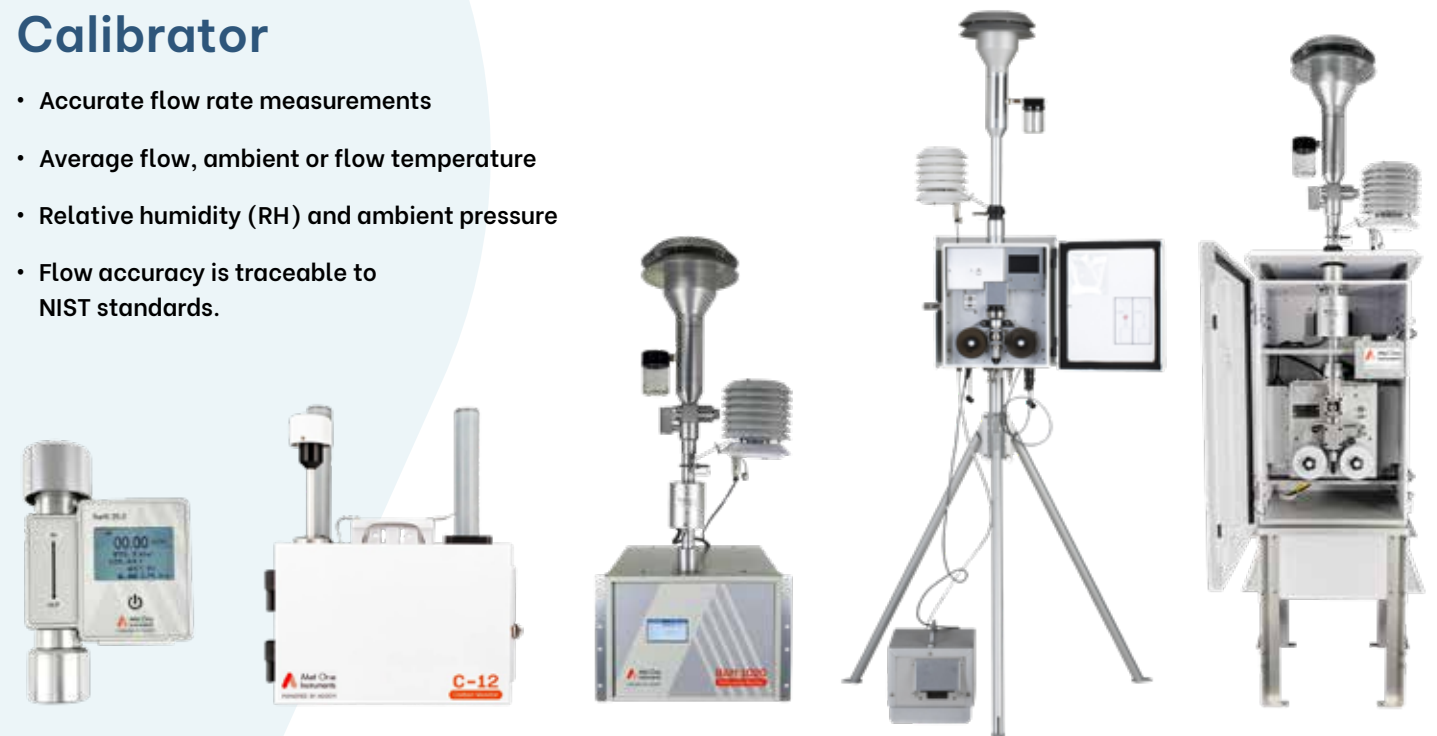
## Swift 25.0 Flow Calibrator

- Accurate flow rate measurements
- Average flow, ambient or flow temperature
- Relative humidity (RH) and ambient pressure
- Flow accuracy is traceable to NIST standards.

## BAM 1022 & BAM 1022 PLUS

- Real-time, portable Beta Attenuation Mass monitors.
- US EPA Class III FEM Designation, PM<sub>2.5</sub>.
- In-situ measurement of PM with high accuracy & minimal measurement artifacts.
- Unsurpassed performance under high ambient dew point operation.
- Advanced communications features allowing remote operation & cloud-based communication.
- Superior diagnostics.
- Meteorological & other sensor inputs.
- Improved sensitivity compared to other in-line Beta Attenuation Mass monitors.

• Our new BAM 1022 PLUS is the most sensitive BAM instrument manufactured, with nearly double the sensitivity of the standard BAM 1022.



## MicroVol™ 1100 Low Volume Air Sampler

- PM<sub>10</sub>, PM<sub>2.5</sub> or TSP
- Flexible sampling platform for particulates & basic meteorological parameters
- Lightweight, rugged weatherproof indoor & outdoor applications
- Wind direction & speed used to activate / deactivate sampler
- Quiet operation, ultra-efficient, long-life DC pump
- Optional battery or solar power.



## HiVol™ 3000 High Volume Air Sampler

- PM<sub>2.5</sub>, PM<sub>10</sub> or TSP
- Remote unattended sampling along with basic meteorological parameters
- US EPA approved & only high volume sampler with CE & 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 / deactivate sampler
- Simple programming of sampling periods & remote control from PC.

## Black Carbon Monitors

- Exhaust & Emissions
- Wildfires & Smoke
- Affordable and easy to use
- Black carbon & brown carbon
- Source apportionment monitor with 1-min time resolution
- Flow dilution system for high concentration environments.



## SASS-Speciation Sampler

- Portable integrated ambient particulate sampling system
- Inlet for PM<sub>2.5</sub> at 6.7 liter/minute sample rate
- Solar shield maintains cassettes to less than <5°C over ambient temperature
- Canister provides data integrity – contamination proof
- New multi-cell denuder & multiple filter media.



## Super SASS-Speciation Sampler

- Up to 8 channel operation
- 1 to 8-day sampling, sequential
- Automatic volumetric flow controllers
- Each channel may be operated independently
- Advanced field audit screens.

## Air Quality Monitors

- PM<sub>10</sub>, PM<sub>4</sub>, PM<sub>2.5</sub>, and PM<sub>1</sub>
- Ideal for fugitive emissions & neighborhood-scale community monitoring projects
- Simple operation, portability & modest cost
- Real-time data reporting LIVE on a custom dashboard
- Wind speed & direction; temperature; relative humidity; barometric pressure; & historical device data
- Near reference data using light scatter technology.



# Gas Analyzers & Calibrators

## REFERENCE QUALITY GAS ANALYZERS

The Acoem line of gas analyzers 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<sub>3</sub>)

### Serinus® 30

Carbon Monoxide Analyser (CO)



### Serinus® 44

Ammonia Analyser (NO, NO<sub>2</sub>, NO<sub>x</sub>, NH<sub>3</sub>)

### Serinus® 51

Sulfur Dioxide & Hydrogen Sulfide Analyser (SO<sub>2</sub>, H<sub>2</sub>S)

### Serinus® 57

Total Reduced Sulfur Analyser (TRS)

### Serinus® 31

Carbon Dioxide Analyser (CO<sub>2</sub>)

### Serinus® 50

Sulfur Dioxide Analyser (SO<sub>2</sub>)

### Serinus® 55

Hydrogen Sulfide Analyser (H<sub>2</sub>S)

### Serinus® 60

Direct Nitrogen Dioxide Analyzer (NO<sub>2</sub>)

### Serinus® 40

Oxides of Nitrogen Analyser (NO, NO<sub>2</sub>, NO<sub>x</sub>)

### Serinus® 56

Total Sulfur Analyser (TS)

### Serinus® 30T

Trace Carbon Monoxide Analyser

### Serinus® 40T

Trace Oxides Of Nitrogen Analyser

### Serinus® 50T

Trace Sulfur Dioxide Analyser

### Cal 100

Performs gas dilution calibrations used in conjunction with regulatory traceable gases and a zero air generator.

### Cal 200

Includes all of the features of the Cal 100 and an ozone generator.

### Cal 300

Includes an ozone generator and photometer for accurate production & delivery of ozone concentrations when calibrating ozone analyzers. It may be used as an ozone transfer standard.

### Cal 301

Equipped with a built-in ozone generator & internal zero-air source, as well as a compact reference photometer, providing detailed feedback control for accurate ozone generation & measurement in the one unit.



- **Highly flexible:** Gas dilution calibrations, ozone analyzer precision checks, gas phase titrations & ozone transfer calibrations
- **Updated user interface:** Conceived & designed using customer input, simple to configure & intuitive to use
- **Class-leading performance:** Accuracy, traceability & repeatability.



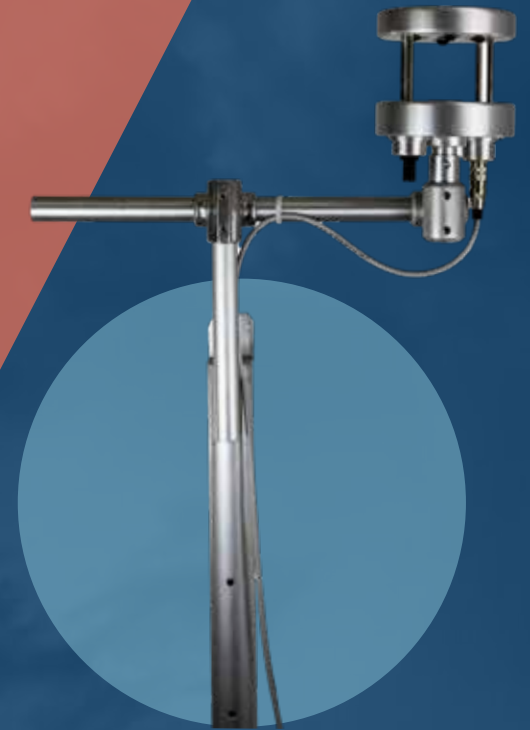
## Meteorological Sensors

Meteorology is at the core of Met One Instruments Powered by Aceom, which was originally established to provide simplified solutions for field engineers working in harsh weather conditions. Since our inception, we have expanded our expertise and product offerings while maintaining our focus on delivering accurate, durable and easy-to-use meteorological instruments.

Met One Instruments Powered by Aceom is your go-to solution for reliable and accurate weather measurements.

### Standard packaged meteorological systems include:

- General purpose weather station
- Industrial weather station
- Rapid response weather station
- Air quality weather station.



Our meteorological systems, comprise of our time-tested, rugged weather sensors and accessories, including:

- Wind speed & direction sensors
- Relative humidity & temperature sensors
- Solar radiation sensors
- Barometric pressure sensors
- Precipitation sensors
- Visibility monitors.

# Aerosol Monitoring & Measurement

A comprehensive line of Aurora™ integrating nephelometers: from single or three wavelength to polar three wavelength

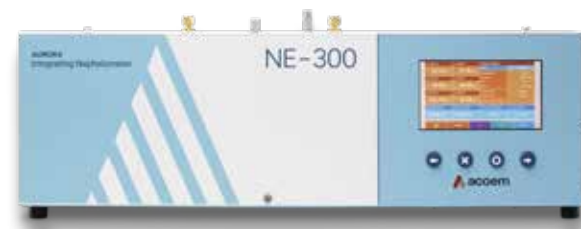
- Total remote control including calibration
- Rugged & robust
- Proven capability in remote, unattended locations for long-term monitoring
- Fully integrated with Airodis™ data collection, validation & reporting software by Acoem
- User-friendly & easy to maintain in the field
- Uncompromising performance with low cost of ownership.



## Aurora™ NE-100

### AFFORDABLE EXCELLENCE

Easy to use and maintain, the Aurora™ NE-100 uses a single wavelength LED for light scattering coefficient and visibility measurements which are selectable from the menu.



## Aurora™ NE-300

### ENHANCED CORRELATION

Simultaneous measurement across 3 wavelengths, enabling wide and in-depth analysis of the interaction between light and particles.

The Aurora™ NE-300 integrates measurements of full scatter and backscatter, making it a perfect instrument for climate change research.



## Aurora™ NE-400 Polar

### BEST-IN-CLASS

The Aurora™ NE-400 provides measurements of light scattering in up to 18 user-selectable angular sectors, using varied backscatter shutter positioning.

This can help determine the phase function of aerosols, which is 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.

# Indoor Air Monitoring

Met One Instruments Powered by Acoem offer a wide selection of portable and bench-top particle counters and dust monitors. Our units provide a convenient and efficient way to monitor indoor air quality. These devices are cost-effective and reliable. Their one-touch monitoring feature makes them user-friendly.



## Clean Room and Controlled Environment



Our handheld and bench-top units are perfect for clean room applications that fall within ISO 14644-1:2015 Class Class 3-9. These units can be seamlessly integrated into existing facility software and building automation systems, ensuring the highest level of data integrity.



### Aerocet 380

#### PORTABLE DUST MONITOR

- Accurate, Real-time airborne Total Suspended Particulate (TSP) concentration levels
- Optional cyclones to monitor PM<sub>1</sub>, PM<sub>2.5</sub>, or PM<sub>10</sub>
- Simple operation
- Built-in data logger
- Purge air system / automatic zero
- WiFi, RS-485 & USB communication.



### Aerocet 831

#### HANDHELD DUST MONITOR

- Five mass ranges (PM<sub>1</sub>, PM<sub>2.5</sub>, PM<sub>4</sub>, PM<sub>10</sub> & TSP)
- Handheld mass monitor that is fully portable & battery operated
- Sample history
- Low cost with data logging
- Portable and lightweight, it can assist in identifying particles of varying sizes.



### BT-620

#### BENCH-TOP PARTICLE COUNTER - 6 CHANNEL

- Easily integrate with existing facility software
- Built-in digital & analogue connectivity
- 21 CFR Part 11 compliance
- ISO 21501-4 compliant with calibration
- Built-in printer for data integrity
- Volumetric flow control for improved accuracy
- Selectable count units (TC, /L, CF, M3)
- User-friendly, menu-driven setup
- User-adjustable sample time
- User-assigned location ID
- Data storage of 8000+ sample events
- Battery & AC-powered
- Audible alarms.



### DR-528

#### HANDHELD PARTICLE COUNTER - 8 CHANNEL

- Large, full-color LCD display
- Menu-driven multi-function rotary scroll wheel
- User-identifiable alphanumeric location IDs
- Integrated RH & temperature sensor
- Intuitive navigation
- Integrated tools menu to optimize device capabilities.





## Noise & Vibration Monitoring



### Cadence™

#### NOISE MONITORING & MANAGEMENT SOLUTION

A responsive, ready-to-use monitoring platform that seamlessly integrates with all Acoem noise measuring devices.

The Cadence™ IoT platform is available 24 x 7 x 365 enabling access to data on an intuitive interface via any connected device.



### Fusion™

#### 4G SMART SOUND & VIBRATION ANALYZER

With IEC 61672 certification and built-in 4G modem, GPS and WiFi, the all-weather, hyperconnected Fusion™ sound level meter guarantees accuracy and high-speed connectivity.

Add a vibration sensor to record/store 3-axis vibrations in parallel, or connect a camera for real-time audio and video alongside pushed data.



### ACT-400

#### MICROPHONE & MONITORING STATION

The Acoustic Connect Terminal (ACT-400) combines the precision of a Class 1 microphone with the maximum protection of an outdoor kit and full connectivity via the Cadence™ noise management system as well as other open-source platforms.



### Orion™

#### SMART VIBRATION MONITORING TERMINAL

An all-in-one vibration monitoring system with integrated sensor, modem, WiFi and GPS.

It is robust, waterproof, easy to configure and use, and features 7 measurement channels and smart integration of vibration standards.

### Cube™

#### 4G SMART NOISE MONITORING TERMINAL

Combining functionality with high-speed connectivity, the versatile Cube™ can be mounted or carried in a portable weatherproof case.

It features inbuilt 4G modem, externally accessible WiFi/GSM/GPS antennae and IEC 61672 certification, guaranteeing data accuracy. Connect to a camera for real-time audio and video event detection.



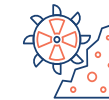
Airport Monitoring



Vehicular Noise Monitoring



Construction Site Monitoring



Mining Monitoring



Windmill Farm Monitoring



Industrial Monitoring



Community Area Monitoring

## Tunnel Sensors

### SMART SOLUTIONS FOR TUNNEL ATMOSPHERE MONITORING

Accurate and efficient monitoring of atmospheric conditions in tunnels is critical to ensuring the safety, health and wellbeing of those who use them.

Monitoring is mandatory for regulatory compliance and integral to maintaining the longevity of the asset for road owners / operators.

Acoem designs, manufactures, commissions and maintains a wide range of tunnel atmosphere monitoring sensors for measuring:



Visibility



Toxic gas emissions



Air speed & direction



Tunnel luminance & illuminance



### Crossflow

#### MULTI-LANE, BIDIRECTIONAL TUNNEL ANEMOMETER



### Viconox

COMBINED CO, NO, NO<sub>2</sub> & VISIBILITY TUNNEL MONITOR

### Airflow MkII

FIXED POINT TUNNEL ANEMOMETER

### ECOM, ENOX & ENOM

SINGLE PARAMETER GAS SENSORS FOR CO, NO<sub>2</sub> / NO

### Illios & Luminos MkIII

ILLUMINANCE ANALYZER



## Continuous Emission

Our innovative range of monitors are specifically designed for various continuous emission applications such as:



Boiler



Filter Bag Houses



Industrial & Marine processes



Incinerators



### DSL - 2XX Series (220, 230 & 240)

Single pass opacity monitors for measuring opacity smoke and particulate & dust emissions.

### DSL - 3XX Series (320, 330 & 340)

Double pass opacity monitors for measuring opacity, smoke and particulate & dust emissions.

### DSL 460

Double pass opacity monitor for measuring the visual opacity and/or concentration of dust/particulate emissions.

### DSL - 610

Laser backscatter monitor for measuring particulate matter concentration.

### SM 202M

Single pass opacity monitor for measuring visible opacity of marine smoke emissions.

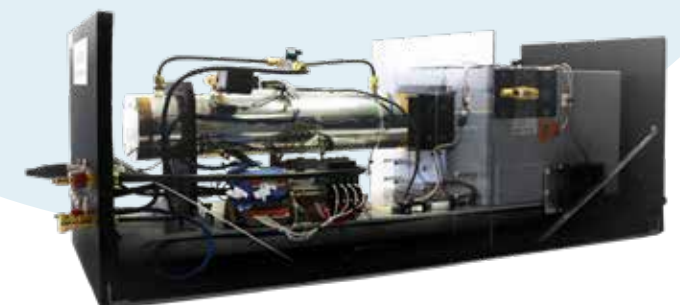


## Greenhouse Gas Measurement

**Spectronus™ FTIR – Trace Greenhouse Gas & Isotope Analyzer: Simultaneous & real-time measurement of CO<sub>2</sub> (incl. δ<sup>13</sup>C & δ<sup>18</sup>O), CH<sub>4</sub>, N<sub>2</sub>O & CO.**

The Spectronus™ FTIR analyzer 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.

The ICOS-compliant Spectronus™ gives precision values for greenhouse gas measurement that exceed World Meteorological Organization (WMO) standards and has been designed to fit comfortably in a standard 19-inch instrument rack.



## Software & Hardware

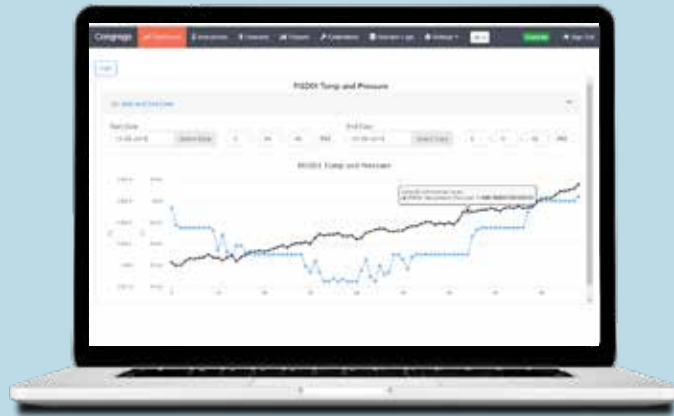
### SUPPORTING ACOEM MET ONE ENVIRONMENTAL PRODUCTS

## Congrego®

### TOTAL DATA CONTROL

Congrego® provides data control and logging for air quality and continuous emission systems. With a simple set up, it is easy to install and features an intuitive and customizable user interface.

Compatible with a wide range of analogue and digital monitoring instruments, Congrego® fulfills the “traceability of records” requirement of ISO 17025.



## 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 you to validate data and generate a wide range of reports.

Airodis™ is designed to easily manage valuable data and maximise your productivity while ensuring accuracy and traceability.

## AMS™

### ASSET MANAGEMENT SYSTEM

AMS™ has been designed to meet individual operator requirements of complex monitoring networks with tens or hundreds of individual pieces of environmental monitoring equipment.

It 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 helps facilitate any internal or external audit process and improves access to records for data validation.

## Integrated Systems

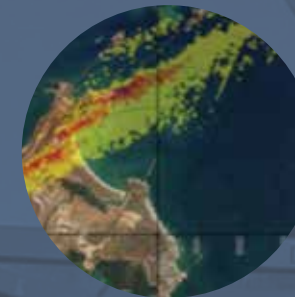
Designed to withstand the toughest environments from urban and industrial sites to tropical rainforests and frozen tundras, Acoem Met One designs, manufactures, installs, commissions and maintains bespoke integrated systems throughout the world including:

- Integrated noise monitoring systems
- Ambient air quality monitoring systems
- Trace/background air 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 3D dust monitoring systems
- Healthy Schools Monitoring (HSM) network
- Customizable speciation samplers.

- Noise Monitoring
- Ambient Air Monitoring
- Trace Air Monitoring
- Tunnel Monitoring
- Blast Monitoring
- Emission Monitoring
- Particulate Monitoring
- OEM Particulate Monitoring



Solar BAM



Integro™ LIDAR radar scan



Large walk-in shelter



Portable shelter



Noise monitoring systems



Polar Shelter





## Operations & Maintenance

Acoem Met One offers a range of environmental monitoring services including:

- Technical Support
- Inhouse Training
- Onsite Training
- Field Service
- Service Depots in Grants Pass and Cincinnati
- NUPIC Certified 10CFR50, Appendix B
- Wind Tunnel Calibration System
- ISO 9001 certified manufacturing facilities.



## Services & Calibration

### ACCREDITED CLASS-LEADING TECHNICAL SERVICES

Nobody knows your instruments better than the technical team that helped to create them.

Regularly servicing and calibrating your instruments optimizes their life and ensures they operate with maximum precision and efficiency, whenever you need them.

Protect your environmental hardware investment by having your equipment serviced, repaired and calibrated at the USA Service & Calibration centers.

- Wind sensors & anemometers
- Meteorological sensors
- Acoem noise & vibration equipment
- Ozone (O<sub>3</sub>) analyzers
- Mercury (Hg) analyzers
- Blast monitors
- Emissions systems
- Gas & isotope analyzers
- Nephelometers
- Beta Attenuation Monitors (BAM)
- Filter-based air quality samplers
- Black carbon monitors
- Calibration of Swift 6.0 & Swift 25.0 flow standards
- Handheld & bench top particle counters
- Onsite training
- Indoor air quality monitors.



## About Met One Instruments Powered by Acoem

Established in 1989 with a primary emphasis placed on exceptional customer service, Met One Instruments Powered by Acoem is committed to providing innovation-driven, quality solutions and technology for ambient air measurement and air quality monitoring.

We continue to fulfil our mission of innovating and bringing new products and services into the market, delivering the full range of Acoem offerings plus the in-house expertise to ensure your instruments always operate to their optimal potential.

For more information visit [metone.com](https://metone.com)



POWERED BY ACOEM

Specifications subject to change without notice. Images used are for illustrative purposes only. All trademarks and registered trademarks are the property of their respective owners.

© 2024 Acoem Met One and all related entities. All rights reserved. 20230512