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## Continuous Emission Monitoring Systems

Market Leading Technical & Legislative Consultancy

Complete Turnkey Solution Providers

MCERTS Accredited Hardware & Software

Cradle to Grave Support Approach



# Continuous Emission Monitoring Systems

**For over 20 years, a1-cbiss continue to be a market leading**

- MCERTS accredited emission monitoring systems provider
- Specialising in design, manufacture and integration
- Complete environmental monitoring turnkey solutions
- Fully MCERTS accredited Data Acquisition Software
- Supported by the industry's largest service network across the UK

## 1. CEMS Management Consultancy

- Market leading technical & legislative consultancy
- Complete turnkey solution providers
- Cradle to grave support approach



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MONITORING & CONTROL FOR YOUR ENVIRONMENT

For over a decade, a1-cbiss have built a relationship with Environnement SA to provide a range of MCERTS accredited, market leading Continuous Emission Monitoring Systems to meet your legislative requirements

## 2. Dedicated Project Management

- Every project is fully supported by a dedicated project manager to provide one point of contact throughout every phase through to completion



## 3. In-House Project Design, Build & Integration

- Regular design reviews & client feedback support revisions as the project evolves
- Systems are all custom built in-house by factory trained engineers
- Factory Acceptance Tests (FAT's) carried out with all relevant inspection certification issued



## 4. Installation & Commissioning

- Expert installation team with over 10 years experience to integrate, calibrate & commission your system
- Site Acceptance Tests (SAT's) carried out



## 5. After Sales Service & Support

- Bespoke contracts tailored to site specific, legislative or budgetary requirements offering peace of mind that equipment is covered for all eventualities
- 24/7 regional service support
- From 6 hour callout response



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MONITORING & CONTROL FOR YOUR ENVIRONMENT



## Datasheet



Installed across the majority of the UK's municipal waste incinerators, the MIR-FT Utilises Fourier Transform Infra-Red (FT-IR) to offer multiple gas measurements simultaneously, including NO, NO<sub>2</sub>, SO<sub>2</sub>, NH<sub>3</sub>, HCl and CO.

With the emissions limits tightening and new gases being introduced, this instrument allows future gas upgrades, providing the solution for today and what may happen tomorrow. Designed to operate under legislation such as 2000/76/EC (WID) and 2001/80/EC (LCPD), The MIR-FT offers maximum availability and complete compliance with QAL 1 of EN14181 & EN15267-3.

### Features:

- Designed for measurements in wet and corrosive sample gases
- Future upgrades possible
- Excellent calibration stability
- Automatic spectral interference corrections
- Fast and simultaneous measurements for multiple gases
- Reproducible and accurate
- Windows based PC driven software with on-board data acquisition
- Capable of automatic QAL 3 checks when used in conjunction with IVIS unit
- MCERTS Certified

The MIR-FT is rack mounted in air conditioned enclosures. Complete systems would normally comprise of:

- Sample extraction and conditioning probe (with integrated temperature, pressure and flow measurement)
- Heated sample lines
- Automatic calibration units
- Instrument air drying system
- CDAS Data Acquisition Software

## Specification

### Applications:

- Municipal, Industrial & Hospital Waste Incinerators
- Power & Combustion
- Biomass
- Cement Kilns
- Pulp & Paper
- DeNOx (SNCR, SCR)

### Specification:

Zero drift:  $\pm 1\%$  full scale/30 days  
Span drift:  $\pm 1\%$  full scale/30 days  
Repeatability:  $\pm 2\%$  full scale  
Lower detectable limit: 2% full scale  
Response time: <2mins depending on the gas  
Power supply: 220V,  $\pm 15\%$ , 50-60Hz, 200VA  
Weight: 20 kg approximately  
Operating temperature: +10°C to +35°C

### Gas MCERTS Certification Ranges

NO	0-200mg/m <sup>3</sup> - 0-600mg/m <sup>3</sup>
NO <sub>2</sub>	0-200mg/m <sup>3</sup>
CO	0-75mg/m <sup>3</sup> - 0-300mg/m <sup>3</sup>
CO <sub>2</sub>	0-25%
SO <sub>2</sub>	0-75mg/m <sup>3</sup> - 0-500mg/m <sup>3</sup>
N <sub>2</sub> O	0-100mg/m <sup>3</sup>
HCl	0-15mg/m <sup>3</sup> - 0-90mg/m <sup>3</sup>
NH <sub>3</sub>	0-15mg/m <sup>3</sup>
H <sub>2</sub> O	0-30%
O <sub>2</sub>	0-25%

## Datasheet



With over 1500 installations world wide, the MIR-9000 is a proven Continuous Emissions Monitoring system across a wide range of industries. All measurements are supplied dry as the sample is conditioned at the extraction point via the SEC drying system before being transported down a cool polytube line.

The MIR-9000-CLD option utilises the Standard Reference Method (SRM) for the monitoring of NO N<sub>2</sub>O NO<sub>2</sub> NO<sub>x</sub> CO CO<sub>2</sub> SO<sub>2</sub> and O<sub>2</sub>. The MIR-9000-CLD analyser is a free standing monitoring system that incorporates three monitoring technologies, these are Chemiluminescence for low level NO<sub>x</sub> measurement, Infra-Red Gas Filter Correlation for CO, CO<sub>2</sub> etc and finally Paramagnetic for O<sub>2</sub>.

Designed to operate under legislation such as 2000/76/EC (WID) and 2001/80/EC (LCPD), The MIR-9000 offers maximum availability and complete compliance with QAL 1 of EN14181 & EN15267-3.

### Features:

- Measures from 1 - 10 gases simultaneously
- Built-in data logger for 7 additional parameters (flow, pressure, temperature or any other analogue input)
- Real time graphic display
- Interactive menu-driven software allowing ease of operation
- Unheated sample line utilising permature drying technology
- Readings measured and expressed on a dry basis
- On-board oxygen correction for environmental reporting
- Optional stack pressure, temperature and flow measurements available
- MCERTS Certified

Complete systems would normally comprise of:

- Sample extraction and conditioning probe (with integrated temperature, pressure and flow measurement)
- Cold sample lines
- Automatic calibration units
- Instrument air drying system
- CDAS Data Acquisition Software

## Specification

### Applications:

- Municipal, Industrial & Hospital Waste Incinerators
- Thermal Oxidisers
- Exhaust Gas Analysis
- Standard Reference Method for VOC Monitoring
- Laboratories and Research Centres
- Process Control
- Combustion Monitoring

### Specification:

Repeatability: <2% of Full Scale (F.S.)  
Zero drift: <2% F.S. / 30 days  
Span drift: <1% F.S. / 7 days  
Linearity: <1% F.S.  
Power supply: 80 - 230V, 50-60 Hz  
Consumption: 300 VA  
Serial link: RS232, RS422  
Operating temperature: +5°C to +40°C

### Gas MCERTS Certification Ranges

NO (CLD)	0-20mg/m <sup>3</sup> - 0-2000mg/m <sup>3</sup>
NO <sub>2</sub> (CLD)	0-20mg/m <sup>3</sup>
NO <sub>x</sub> (CLD)	0-20mg/m <sup>3</sup>
NO	0-100mg/m <sup>3</sup> - 0-500mg/m <sup>3</sup>
CO	0-75mg/m <sup>3</sup> - 0-500mg/m <sup>3</sup>
CO <sub>2</sub>	0-25%
SO <sub>2</sub>	0-75mg/m <sup>3</sup> - 0-200mg/m <sup>3</sup>
N <sub>2</sub> O	0-20mg/m <sup>3</sup> - 0-200mg/m <sup>3</sup>
HCl	0-15mg/m <sup>3</sup> - 0-100mg/m <sup>3</sup>
CH <sub>4</sub>	0-10mg/m <sup>3</sup> - 0-200mg/m <sup>3</sup>
O <sub>2</sub>	0-10% - 0-25%



## Datasheet



Designed to operate under legislation such as 2000/76/EC (WID) and 2001/80/EC (LCPD), The MIR-IS offers maximum availability and complete compliance with QAL 1 of EN14181 & EN15267-3.

Based on the MIR-9000, the in-situ multi-gas CEM system is a compact extractive monitoring system, providing fast response, close coupled measurements.

For multi-gas monitoring, in less than 40 milliseconds, the MIR-IS monitors each selected gas by Infra-Red Gas Filter Correlation principle. This technology eliminates cross sensitivity from other present gases and provides high accuracy.

The MIR-IS also monitors temperature, flow and pressure integrated into the sample extraction probe.

### Features:

- In-situ extractive installation
- Measures from 1-10 gases simultaneously
- Ease of installation: single stack entry, sample line not required therefore reducing costs
- Integrated air drying and handling system
- The Infra-red technology eliminates cross sensitivity from other present gases and provides high accuracy
- Fast response for process control
- Auto calibration check capability
- Powerful remote functions
- Synoptic flow diagram display
- Interactive menu driven software
- Optional stack pressure, temperature and flow measurements available
- MCERTS Certified

## Specification

### Applications:

- Municipal, Industrial & Hospital Waste Incinerators
- Power & Combustion
- Biomass
- Cement Kilns
- Pulp & Paper
- DeNOx (SNCR, SCR)

### Specification:

- Material in contact with effluent: Stainless Steel, Hastelloy or PTFE
- Number of gases monitored: up to 10
- Repeatability:  $\pm 2\%$  of full scale
- Zero drift:  $\pm 2\%$  of full scale/30 days
- Span drift:  $\pm 2\%$  of full scale/30 days
- Linearity:  $\pm 1\%$  of full scale
- Lowest detectable limit:  $\pm 2\%$  of full scale
- Data storage: last 3000 averages
- Digital output: RS232/422
- Probe length: 700x1000x1500mm
- Weight: 30kg approximately
- Power: 115/230VAC, 50/60Hz, 700VA
- Operating temperature: -15°C to +50°C

### Gas MCERTS Certification Ranges

NO	0-100mg/m <sup>3</sup> - 0-500mg/m <sup>3</sup>
N <sub>2</sub> O	0-20mg/m <sup>3</sup> - 0-200mg/m <sup>3</sup>
CO	0-75mg/m <sup>3</sup> - 0-500mg/m <sup>3</sup>
CO <sub>2</sub>	0-25%
SO <sub>2</sub>	0-75mg/m <sup>3</sup> - 0-200mg/m <sup>3</sup>
HCl	0-15mg/m <sup>3</sup> - 0-100mg/m <sup>3</sup>
CH <sub>4</sub>	0-10mg/m <sup>3</sup> - 0-200mg/m <sup>3</sup>
O <sub>2</sub>	0-10% - 0-25%

## Datasheet



The Graphite 52M is fully supported by MCERTS certified CDAS Elite Data Acquisition Software and a comprehensive service and support package.

Equipped with one burner placed in a heated block, the Graphite 52M allows continuous and accurate Total VOC monitoring.

The FID is temperature controlled up to 191°C to eliminate condensation. Extremely compact and with a very short response time, this heated FID provides continuous monitoring of total VOC's, in compliance with the Waste Incineration Directive and EN12619 standard as written in most WID permits.

### Features:

- Detector placed in a heated oven, up to 191°C allowing measurement of high concentrations of heavy hydrocarbons
- Fast response time
- Real time graphic display with interactive menu driven software
- Integrated zero air catalyst
- Dual stream monitoring by independent detectors available
- User selectable ranging
- Very low limits of detection
- Hydrogen/Helium fuel supply thus reducing oxygen interference
- Fully compatible with the Environnement S.A. MIR-FT & MIR-9000 CEM systems
- MCERTS Certified

## Specification

### Applications:

- Municipal, Industrial & Hospital Waste Incinerators
- Thermal Oxidisers
- Exhaust Gas Analysis
- Standard Reference Method for VOC Monitoring
- Laboratories and Research Centres
- Process Control
- Combustion Monitoring

### MCERTS Certification Range:

TOC: 0-15mg/m<sup>3</sup>

### Specification:

- Ranges: 0-10/100/1000/10000 ppm or user programmable range up to 50 000 ppm
- Accuracy: < 1% of the displayed value between 15% and 100% of the F.S.
- Lower detectable limit: 0.05 ppm of the 10 ppm range
- Response time: < 1 sec. (T90)
- Zero drift: <1%/24h F.S. <2%/7 days F.S.
- Span drift: <1% / 7 days F.S.
- Linearity: <1% for concentration between 10 % and 90% of the scale
- Temperature of the heated block: up to 191°C
- Weight: 22kg approximately
- Power supply: 230 VAC, 50Hz or 115 VAC, 60 Hz
- Operating temperature: +5°C to +40°C





## Datasheet



The PCME QAL181 utilises Proscatter to measure the scattered forward light from a laser source. The QAL991 utilises PCME's unique AC Electrodynamic technology, an advanced Triboelectric method.

The QAL181 & QAL991 are ideal where high accuracy and stability are required or when bag filters are not installed, designed to operate under legislation such as 2000/76/EC (WID) and 2001/80/EC (LCPD), the QAL181 offers complete compliance with EN14181, EN13284-2 & EN15267-3.

### Features:

- Automatic self-checks which record results for QAL3 tests
- Capability to conduct linearity checks in accordance with EN14181
- Real time graphic display with interactive menu driven software
- Very low limits of detection
- MCERTS Certified

With online calibration capability, the QAL181 & QAL991 minimises drift but also offers the QAL3 facility when used with CDAS Elite Data Acquisition Software.

## Specification

### Applications:

- Municipal, Industrial & Hospital Waste Incinerators
- Thermal Oxidisers
- Exhaust Gas Analysis
- Laboratories and Research Centres
- Process Control
- Combustion Monitoring

### MCERTS Certification Range:

TPM: 0-15mg/m<sup>3</sup>

### Specification QAL991

- Certification range: 0-15mg/m<sup>3</sup> (as stated in QAL1 approval)
- Measurement capability: 0-100mg/m<sup>3</sup>
- Long term zero drift: <0.1mg/m<sup>3</sup>
- Inspection frequency: 6 months
- No velocity restrictions in processes between 8m/s-20m/s
- Constant velocity required outside this range
- For stack diameters: 500mm to 3m (multi-sensor configuration required for stack > 3m)
- Enclosure temperature rating -25°C to +55°C

### Specification QAL181

- Minimum detection limit of < 0.05 mg/m<sup>3</sup> and certification range of 0-15 mg/m<sup>3</sup> and measurement range 0-200 mg/m<sup>3</sup>
- Long term zero drift: <0.1mg/m<sup>3</sup>
- Inspection frequency: 3 months
- Air purge requirements: 30 to 40 litres/ minute unaffected by changes in velocity
- Enclosure temperature rating -25°C to +55°C
- Probe length 700mm or 1400mm

## Datasheet



Syngas Monitoring System (SMS) is designed to monitor and report the constituents of the syngas produced by the gasification process. The SMS provides live CV value, essential to determine your qualification for renewable obligation certificates (ROCS). In modern gasification where syngas composition is paramount for determining the calorific value, the a1-cbiss SMS provides an accurate, cost effective solution.

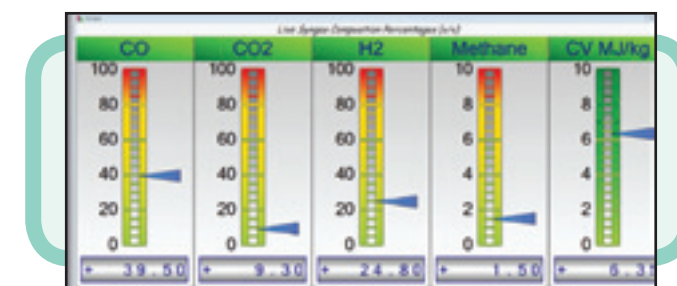
The SMS utilises varying degrees of high temperature probes ranging from stainless steel through to inconel and water cooled if required. The SMS gas is continuously taken, conditioned and analysed at a single sampling point.

Sample preparation and conditioning is a key element of the system, upon which substantially depends on the correctness of the consequent measurement, as well as the lifetime of the measurement sensors.

## Specification

### Data Acquisition Software

In conjunction with the SMS a1-cbiss are able to offer market leading MCERTS accredited data acquisition and reporting software complete with live CV calculation.



### Applications:

- Gasification
- Anaerobic Digestion
- Biogas

### What Does the System Measure?

- CO • H<sub>2</sub> • CO<sub>2</sub> • O<sub>2</sub> • CH<sub>4</sub>
- Option to add additional parameters to meet gasification process

### How Does the System Work?

The sample intake is provided through a heated sample probe with large surface filtration. The sample conditioning system includes a high performance cooler. The heat exchanger is constructed in a way to minimise the loss of water soluble compounds.

The sample gas is appropriately filtered in order to remove solid particulates and any acid aerosols. The sample conditioning equipment in total consists of a condensate detector, condensate pump and sample pump.

### Specifications:

- Power supply: 110v or 230v
- Operating temperature: +5°C to +40°C

Model	Gas	Accuracy	Stability
Gascard NG	CO	+/- 2% of range	2% of range over 12 mths
	CH <sub>4</sub>		
	CO <sub>2</sub>		
K1550	H <sub>2</sub>	+/- 2% FSD	1% FSD per month



## AMESA

### Dioxins & Furans Emissions Sampler

## Datasheet



The AMESA is fast becoming the system of choice for new build energy from waste plants for the continuous sampling of dioxins and furans as standard.

The continuous dioxin and furan sampling system makes it possible to sample trace pollutants such as dioxins and furans.

The AMESA® is MCERTS accredited and complies with EN1948. Fully supported by AMLEIT monitoring software and MCERTS Certified CDAS Elite Data Acquisition Software.

## Specification

### Applications:

- Municipal, Hazardous & Hospital Waste Incineration
- Energy From Waste (EFW)
- Production Plants
- Recycling Plants
- Cement Kilns
- Metallurgic Plants
- Pulp and Paper

### Features & Benefits:

- Continuous automatic sampling giving a more accurate representation of the sample
- Automated datalogging recording over a period of 6 hours up to 30 days
- Datalogging including: flue gas velocity, sample gas flow volume, flue gas temperature and cartridge temperature as half-hourly average
- Simultaneous monitoring of up to 4 sample streams with 1 AMESA system
- Remote control functionality available
- Reduced costs due to optimisation of the built-in dioxin reduction stages
- Flue transparency

### MCERTS Certification Ranges:

Isokinetic Sampling Velocity:

- 2-20m/s

## Bacharach

### Combustion Analysers

## ECA 450



The ECA 450 from Bacharach is ideal for professionals to conduct accurate combustion and emissions tests whilst improving overall combustion efficiency, reducing fuel costs, and determining emissions compliance.

The ECA 450 takes continuous samplings of furnaces, boilers and other industrial combustion equipment for up to 8 hours and generates precise, reliable combustion and environmental measurements and calculations. It generates this complex data easily — even at selected intervals - enabling plants to make more accurate equipment adjustments and better assess pollution levels.

### Features and Benefits:

- Large, easy-to-read fluorescent display that is visible from wide angles
- Modular design lets you add sensors as your needs change
- Built-in printer and complete data downloading to a PC capability
- Stores over 1000 individual combustion and/or pressure test records, which can later be recalled for viewing or printing

### Measures:

- Oxygen (O<sub>2</sub>), Carbon Monoxide (CO), Nitric Oxide (NO), Nitrogen Dioxide (NO<sub>2</sub>), Sulphur Dioxide (SO<sub>2</sub>)
- Combustibles, Temperature & Draft. It also calculates combustion efficiency, excess air, carbon dioxide, NOx (Nitrogen Oxides) and pollution units

## PCA 3

a1-cbiss are pleased to announce the launch of the new Bacharach PCA®3, the industry's first advanced portable combustion analyser with a full colour graphic display for superior visibility and user-friendly interface and the most sensor configuration flexibility in its class.

The PCA®3 is the definitive combustion and emissions analyser that enables fast and accurate measurement for on-demand or semi-continuous sampling of light industrial, institutional, commercial and residential furnaces, boilers and appliances.

### Features and Benefits:

- Sensors can easily be added or removed in the field without down time, using the B-Smart® pre-calibrated sensor options.

### Measures:

- In addition to the included Oxygen (O<sub>2</sub>) and Carbon Monoxide (CO) sensors, the PCA®3 can be ordered with CO (high), Nitric Oxide (NO), Nitrogen Dioxide (NO<sub>2</sub>) and Sulphur Dioxide (SO<sub>2</sub>) sensors.







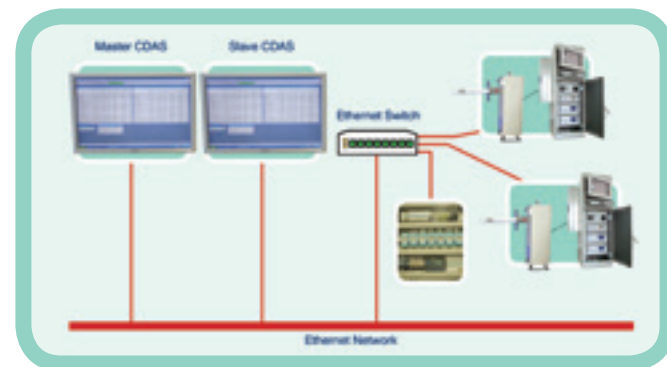
## Environmental CDAS Data Acquisition Reporting and Network Packages

### What is CDAS?

CDAS is the market leading MCERTS accredited (parts A, B, C1 & C2) Data Acquisition package that retrieves data from a range of instruments for CEMS, Gas Detection and Sampling applications. The CDAS software meets the stringent demands of WID, LCPD, EN14181, IPPC and customer specific requirements.

From data logging to data processing, trending and reporting, the CDAS software suite provides the flexibility to supply a complete solution for your site.

Typical communications protocols include serial, Ethernet, analogue and digital I/O. Other protocols are supported such as Modbus, OPC and PROFIBUS, for easy interfacing to a PLC.



### Data Collection, Processing & Visualisation

CDAS acquires data in real time. Real time data then converted to:

- Raw Data (Instrument Value)
- Calibrated Data (EN14181 QAL2 Calibration Function)
- Corrected Data (Reference Conditions)
- Adjusted Data (Reportable Values)

A data file for each of the conditions above is written to the hard disk. CDAS does not delete any data that it has recorded.

### Standard CDAS Features:

- Automatic Period Reports
- Communicates via Remote Analogue I/O
- Dual Redundant Data Collection
- Correction to Standard Reference Conditions
- Allows application of EN14181 Calibration Functions
- Performs Automatic EN14181 QAL3 Testing
- Graphing Options
- Configurable Alarms
- Searchable Alarm History Screen

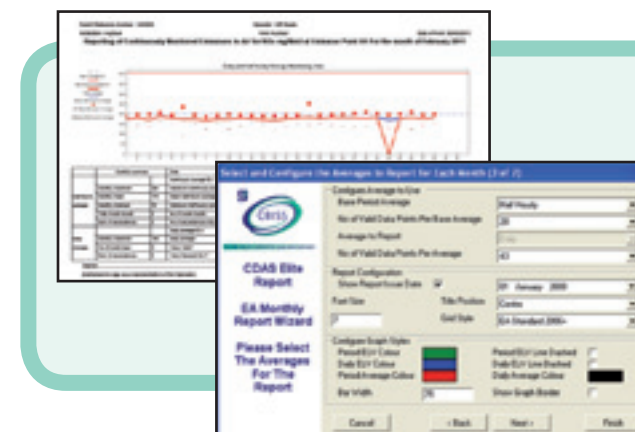
CDAS allows the data to be viewed in a fully configurable screen layout to support individual preferences via preset and customisable data channels.



### CDAS Report

CDAS Report is an offline package that allows reports and graphs to be generated. CDAS Report offers the flexibility to configure reports to meet the requirements of the site permit and the EA.

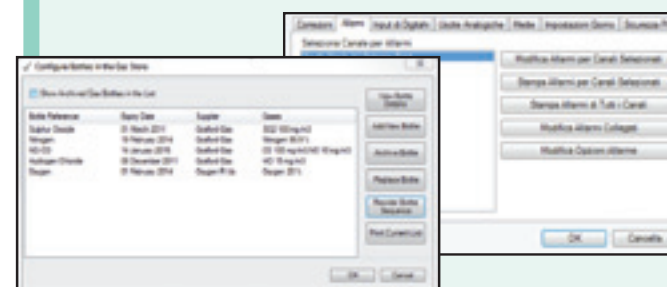
Each report can be generated at any time without interrupting the data collection process. Reports are simple to generate using the report wizard.



Based on market feedback and regular communications with existing customers, a1-cbiss are launching the new CDAS platform with improved features to support evolving requirements

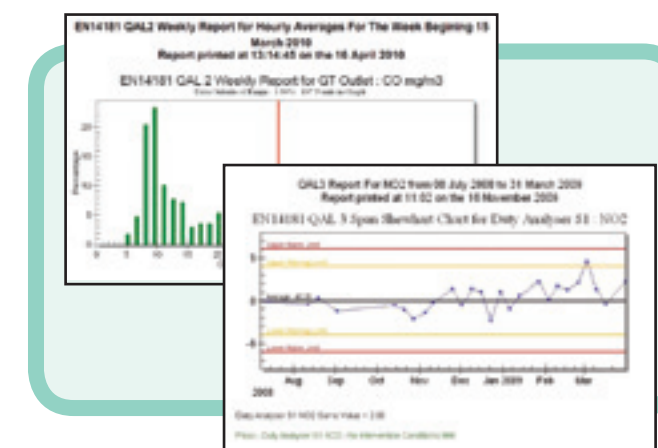
### NEW CDAS Features in 2011:

- Windows 7 Compatability
- Specific Gas Bottles Associated to QAL3 Test
- Simultaneously Performs Multiple QAL3 Tests from a Mixed Gas Bottle
- Multi Language Support



### EN14181

CDAS eases the burden of EN14181 compliance as it allows application of QAL2 calibration functions and performs automatic QAL3 Testing



### Dual Redundancy

To maximise data capture, two copies of CDAS can be set up in a duty/standby dual redundant arrangement. The standby machine connects to the duty machine and is supplied with live data. If the standby machine detects that the live data supply is interrupted then it will attempt to collect data from the instruments itself.



## Service & Support

The a1-cbiss philosophy differs from our competitors in that we firmly believe quality should continue far beyond supply. All systems are supported by our dedicated service department to provide repair, calibration, preventative maintenance, software support and remote diagnostics - 24 hour / 7 days per week to our customers

With the largest dedicated CEMS service support network in the industry, a1-cbiss have fully factory trained industry specialists on hand to provide full customer service and support

Ongoing service & support is integral to the a1-cbiss offering. With a comprehensive service & support package that is fully flexible to meet customer specific, legislative or budgetary requirements, offering peace of mind that equipment is covered for all eventualities

- **Regional service structure**
- **Dedicated engineers allocated to your site to improve customer relations and quality of service**
- **Most experienced CEMS service team in the UK with combined industry experience of over 150 years**

**Paul Morgan**  
Southern Area Sales & Service Manager



## Service Contract Benefits

Our wealth of knowledge and experience ensures you meet legislative requirements with no downtime, therefore maximising your investment. Additional benefits include:

- **Flexibility to suit your requirements**
- **EN14181 consultancy and compliance support**
- **OMA - Pre audit check and OMA audit attendance**
- **Full operator system training**
- **Reduced downtime to improve plant efficiency**
- **Unrivalled industry experience**
- **Regional on-call service engineer 24/7**

### Typical Service Contract Comprises:

- 4 scheduled service and calibration visits per year
- All parts, labour and travel inclusive
- Guaranteed response time from 6 hours
- Site allocated service engineer
- Fully inclusive of warranty and breakdown cover
- 24/7 regional service support
- Remote diagnostics support
- Legislation compliant service documentation
- EN14181 compliant functional checks
- Comprehensive stockists of critical spare parts and consumables

### Training:

a1-cbiss can provide a comprehensive training package to meet all of your site requirements. Our service department can also provide full system training for your staff, advice and support for OMA surveys and advice and guidance on all relevant legislation. We offer structured training programs for all of our CEMS equipment, which would comprise of the following topics:

- Advanced system technical training
- Advanced system CDAS training
- Objective CEMS specification consultancy to meet permit requirements
- Legislation specific
- EN14181 - QAL3





# Client Reference Lists

Veolia, Ellesmere Port	Peake GB Ltd, Cornwall
Dalkia, Chilton	MES, Wolverhampton
London Waste, Edmonton	MES, Dudley,
CNIM, States of Jersey	MES, Stoke
Inco Europe, London	Veolia SELCHP, Deptford
Voelia, Tyseley	Metso, Markinch Scotland
Hampshire Waste, Chineham	Slough Heat & Power Ltd
Hampshire Waste, Marchwood	EON UK Ltd, Ironbridge
Hampshire Waste, Portsmouth	EON UK Ltd, Kingsnorth
Qinetiq Ltd, Essex	EON UK Ltd, Castleford
Coventry & Solihull	EON UK Ltd, Killingholme
Borders General Hospital, Melrose	EON UK Ltd, Sandbach
Whiterose Environmental Ltd, Kent	Coryton Power, Stanford-le-hope
DSTL, Wiltshire	EON UK Ltd, Stoke on Trent
Lakeside EFW, Colnbrook	EON UK Ltd, Ratcliffe
Grundon Waste Management Ltd, Berkshire	

# Client Testimonials

*“We became aware of a1-cbiss and their emissions monitoring systems through our operational involvement on one of our Contract Energy Management contracts in the North-East of England.*

*We were in the design phase of a new wood chip burning Power Station and, as relative newcomers to this field, we received a great deal of technical guidance from a1-cbiss regarding WID compliance.*

*We were particularly impressed by the fact that the CEMS is 100% engineered by a1-cbiss including the CDAS software and also received a very competitive tender return compared to their rivals in this field.*

*We look forward to working with them during the commissioning phase of the station.”*

**Peter Cleary**  
Senior Project Engineer  
Dalkia Energy

*“WSP regularly partner with a1-cbiss to ensure our permitting clients get the best technical advice and response to their CEMS needs.”*

**Neal Barker**  
Technical Director  
WSP Environment and Energy

*“We have been using a1-cbiss since the plant was built for their expertise, technical guidance and market leading equipment. The equipment we have onsite is the MIR-FT system combined with a GR52M FID and the a1-cbiss data acquisition software CDAS Elite. The complete CEM system has proven to be very reliable and dependable over the years. One of the key benefits to us is the CDAS elite software package which is easy to use and extremely flexible meeting all our site requirements. The a1-cbiss engineers offer exceptional support, as well as being professional and knowledgeable. The a1-cbiss legislative consultancy approach has been invaluable and helped contribute to us achieving one of the highest OMA scores in the industry.”*

**Andy McQueen**  
EFW Facility Plant Manager  
Veolia Chineham



### the Background

Because of ageing equipment and increasing issues surrounding reliability, one of Europe's leading power suppliers decided to roll out a series of site upgrades to replace their continuous emission monitoring systems (CEMS) at a coal fired power station and two gas turbine sites across the UK.

### the Challenge

1. To supply CEMS that complies with the requirements of MCERTS, the large combustion plant directive (LCPD) and the industrial emissions directive (IED), which is due to be enforced in 2016
2. To include a system redundancy option at the coal fired power station to prevent any downtime
3. To monitor temperature, pressure and flow measurement directly from the flue and establish communications between the analysers and Data Acquisition & Reporting Software
4. The coal fired power station required the systems to be installed in the main exit flues (within one concrete windshield), at a height of 75 meters above ground level
5. The incumbent systems were not provided by a1-cbiss, therefore a1-cbiss would have to prove that their solution, service and support is superior to the incumbent supplier

### the Solution

At the coal fired power station, a1-cbiss proposed an MCERTS accredited MIR9000 infrared multi-gas analyser that monitors extracted samples on a dry basis, using a SEC sample conditioning system. The SEC sample conditioning system comprised of an in-situ probe, a permeation dryer unit and a temperature, pressure and flow module integrated into the same probe. A permeation dryer eradicates the requirement for long lengths of heated line.

The MIR9000 system MCERTS accreditation is based on the Emission Limit Values (ELV) of the waste incineration directive, and subsequently future proofs the site for the ELV change when the IED comes into force in 2016.

Using a single probe for measuring all of the required parameters reduced the number of penetrations in the flues and consequently lowered the cost of installation.

The option for system redundancy was addressed by proposing a fully automated change-over system with an additional MIR9000 analyser. The system would be fully controlled by the CDAS software, therefore requiring minimal user intervention and eliminating any risk of downtime.

For the gas turbine site, a1-cbiss proposed MIR9000 CLD chemiluminescence and infrared multi-gas analysers that monitor extracted samples on a dry basis, using a SEC sample conditioning system. The SEC sample conditioning system comprised of the same elements as used in the MIR9000 system. The CLD system fully complies with the standard reference method (SRM) EN 14792 for the measurement of NOx. The CLD also has MCERTS certification that complies with the new limits in the IED.

Service & support is integral to the a1-cbiss offering. With the largest service network in the industry and nationwide coverage, the dedicated team of service engineers provide service, repair & maintenance on all equipment supplied.

### the Result

a1-cbiss manage all aspects of the project from design & build, installation and commissioning, through to on-going service and support.

The coal fired power station saw the installation of nine MIR9000 multi-gas MCERTS accredited analysers comprising of four duty MIR9000 systems and 1 standby MIR9000 with a changeover system for redundancy. The analysers are integrated into a purpose built enclosure, all communicating via the MCERTS certified CBISS Elite Data Acquisition & Reporting software (CDAS) which also incorporates the IVIS hardware panel allowing for QAL 3 functionality.

The gas turbine site saw the installation of seven MIR9000 CLD multi-gas analysers. Again the analysers are integrated into a purpose built enclosure, all communicating via the MCERTS certified CBISS Elite Data Acquisition & Reporting software (CDAS) which also incorporates the IVIS hardware panel allowing for QAL 3 functionality.



Design and Build



Purpose Built Enclosure



Installation & Commissioning