Enviro News

www.et.co.uk

Autumn 2018

Introducing the Smog Box

What every air quality monitoring ***officer requires:*** A battery-powered, portable, **MCERTS approved NO_2 monitoring** station for measurements on-the-move or for short durations in fixed locations.

Plus:

A look into one of our longest standing suppliers brand new production facility in San Diego - Teledyne API.

CEMS: The technology behind one of the leading CEM systems on the market today.

New Product Focus :

ET signs up new supplier for drone based monitoring technology - Scentroid.

ETs' new partnership with Sunset Laboratory Inc. gives us the latest in thermal / optical OC-EC PM monitoring technology.

Monitor real driving emissions with the RDE on-vehicle testing system from Opsis AB.

Methane monitoring made easy.

A look at GrayWolf's new smart probes.

Look out for us at AQE 2018 on stands 69 - 72! 21st & 22nd Nov 2018, Telford

Welcome to our Autumn 2018 edition of EnviroNews

As we whizz through 2018 at, what feels like, lightning speed, I hope the year has proved to be as rewarding for you as it has for ET.

In September, we celebrated our 35th Anniversary. Our success and longevity really come down to three main things. Our people, innovate technology and our overall vision and business philosophy: "to provide the highest quality products and customer services in the sectors we serve". At ET, our business revolves around customer care and continuous improvement which is evidenced by our excellent customer testimonials and our trio of BSI ISO standards; 9001, 14001 and 18001.

Major contract wins

Reflecting back on the year, we've had some significant successes. In the early part of 2018 we were delighted to find out that we'd been awarded a large contract with the Environment Agency to supply new and replacement particulate monitors for the AURN. A two-year service contract (with an option for a further two years) soon followed. We will supply the network with Defra MCERTS approved BAM-1020 particulate monitors for PM_{10}, $PM_{2.5}$ and PM Coarse (PM_{10} and $PM_{2.5}$ combined) as part of an eventual replacement programme of up circa 100 particulate monitors.

Following the AURN award, ET were awarded another substantial contract with the Irish EPA. Forty-eight TAPI gas analysers were placed on order for the expansion of their Air Quality Monitoring Network.

Research and Development

Aside from these major contract wins, ET has been very busy with some exciting R&D projects.

Spurred on by the success of our ground-breaking Smogmobile, we have developed a GPS enabled, web-logging, fast-responding mobile NO_2 monitoring system, AKA the SmogBox. The need for a reference method, direct-reading mobile NO_2 monitor (as opposed to controversial and questionable NO_2 sensors/pods) has been apparent to us for some time so we were pleased to get this up and running. It's already proved its worth on a number of projects. Back in July, Sales Director, Mike Webley was contacted by community-led campaign group 'No Toxic Cruise Port for London' who are fighting plans for London's toxic cruise port, an initiative that would see 55 more ships per year, in that area. Mike and the SmogBox met up with the BBC in Greenwich and completed some spot measurements, confirming the NO_2 concentrations along the river that day would breach limit values if they remained at those levels throughout the year. It's also been on a trip to Brighton, to see how air quality compares along the sea front in comparison to the busy back street roads.

Based on an MCERTS approved and reference method equivalent monitoring technology, these data are far more accurate, dependable and defendable than the myriad of 'sensor' based systems that are currently flooding the market.

Going Stateside

In August, I went to visit our good friends and long-term suppliers, Teledyne API in San Diego. The shear quality of the analysers they produce coupled with the rigorous testing they undergo makes it clear to see how they remain one of the leading manufacturers of real-time, ambient gas analysers in the World. There's more about my trip on pages 4-6.

We've also taken on new distributor agreements with Scentroid and Sunset Laboratory Inc., based in Canada and the USA respectively. It means we've now added some brilliant new technology for industrial monitoring. For example, the DR1000 flying laboratory, a drone-based monitor for the measurement of H_2S, CH_4, CO_2, SO_2, VOCs plus more than 30 other gases and particulate matter. We've also added to our range cutting edge, carbon aerosol particulate analysis instruments for use in the lab or field. This range of OC-EC instruments from Sunset Laboratory Inc. for the measurement of particulate organic and elemental carbon are the only ones of their kind on the market today.

New developments

There's also some exciting new developments from some of our existing suppliers. An even smaller version of the phenomenally successful Ultraportable Greenhouse Gas Analyser from Los Gatos Research has been launched and has been christened 'Microportable'. The handbag-sized, lightweight, battery powered portable unit weighs only 5.4kg making it perfect for a multitude of applications, in any location. Single and twin laser versions are available depending on whether it is just methane or methane and CO_2 that needs to be measured.

Other new supplier developments include; the RDE 100 'real-world' vehicle emission PEMS (Portable Emissions Monitoring System) from Opsis AB. The RDE 100 measures multiple gases including NO_2, NO and NH_3 in real-time and can be fitted to a vehicle and be fully operational in less than half an hour.

Moving on to Indoor Air Quality Monitoring, leading IAQ monitoring manufacturer GrayWolf Sensing Solutions are close to launching a new range of 'Smart' IAQ probes. They take current sensor technology to a whole new level. Stay tuned for the official product release date.

ETs' commitment to corporate social responsibility is as strong as ever. This year we took out corporate membership with the Woodland Trust. Our money will go towards supporting them plant and protect more trees and inspire people to value our woodlands.

Finally, I hope you enjoy this edition of our newsletter and look forward to seeing some of you soon at Routes to Clean Air on (29th – 30th Oct), AQE on (21st -22nd Nov) or at the Royal Society of Chemistry AAMG on 11th-12th Dec.

Duncan Mounsor, Managing Director

New faces

We have a few new faces we would like to welcome to our team.

Paul Wilford, UK Sales Manager: Industrial Applications

Paul has a vast amount of experience within the Air Quality monitoring industry. For the last 15 years, Paul has worked in UK and international technical sales positions selling measuring and monitoring systems for environmental parameters such as gases, particulates, noise and vibration with a particular emphasis on air quality, CEMs and industrial gas process and leak measurement. Paul has joined ETs sales team to work with our industrial customers.

Joy Wilkinson, Business Development Assistant

Joy has a wealth of strategic business experience within the IT industry managing accounts for both public and private sectors.

Her role at ET is to help create opportunities for the sales team, research new markets and work with the marketing department.

Amanda Williams, Administration Support Assistant

Amanda's previous experience has placed her as a great candidate for her role at ET where she works alongside the customer services team generating quotes, updating customers and liaising with suppliers on time scales for delivery amongst her other many duties.

Mats Carlsson, Trainee Project Manager/ Project Engineer

Mats has joined us after having recently achieved a BEng (Hons) Mechanical Engineering from the University of the West of England where he completed modules in project management and had hands on practical work with electronics.
His first language is English but he also speaks fluent Swedish. A skill that could be very useful when talking to our good friends and suppliers Opsis AB in Sweden!

Colin Rennie, Customer Support Engineer (Scotland)

Colin is ex RAF which presents a multitude of transferable skills to ET. He's also had a lot of training and experience in fixing instruments throughout his career. Colin is based in Charelstown, Fife and therefore is perfectly situated to manage our Scottish sites.

GDPR

At ET we see GDPR as a positive thing. Not only does it ensure the data we hold is kept safe, but it also means we have streamlined our marketing practices and made a number of changes to our internal processes to safe guard the personal details of our staff and customers alike.

Following the GDPR laws coming into place in May 2018 ET have issued a new Privacy Policy. You can access this via our website under 'About Us - GDPR Privacy Notice'. We will be audited on the systems we have in place moving forward under our BSI ISO 9001 accreditation.

NEW product news

Accurate, mobile NO_2 monitoring made easy

enviro technology services

SmogBox

Now you really can take high-quality NO_2 measurements at air pollution hot-spots without having to worry about site power or planning permission.

Just wheel the SmogBox along, taking measurements as you go, and when you get there, you can simply secure the unit to something suitable and leave it running, from either its own battery pack or connect up to mains (if available). Simple!

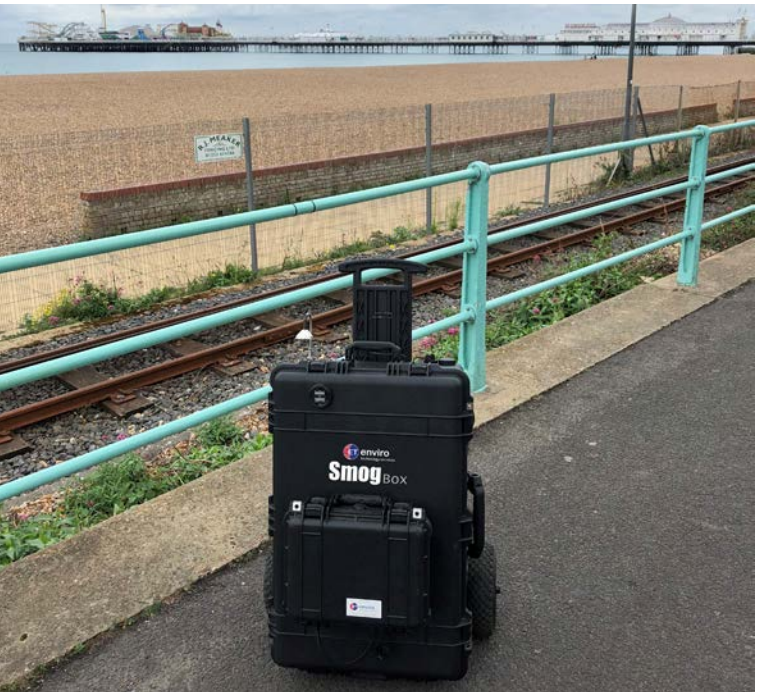
Furthermore, an optional GPS-enabled web-logger means that you can easily track NO_2 concentrations with your positioning, with colleagues being able to log-in in real-time and see exactly what the concentrations are at the precise location of the SmogBox.

What's inside?

A T500 U CAPS direct NO_2 Analyser, GPS system and datalogger.

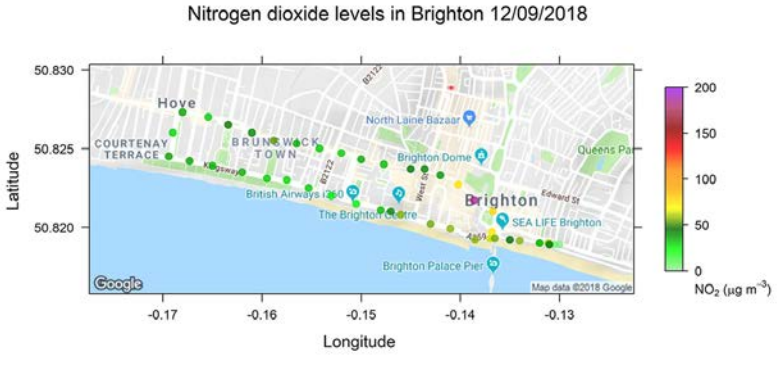
mCERTS
THE ENVIRONMENT AGENCY'S MONITORING CERTIFICATION SCHEME
Sira MC160304/00

ET developed the SmogBox because we recognised there were no other products on the market that could measure NO_2 with such precision and mobility, enabling AQ officers and consultants alike the ability to investigate potential hot spots where no real-time, permanent monitoring has been carried out.



ET Director, Mike Webley, took a stroll along the seafront and some of the back streets in Brighton with the SmogBox to see how much NO_2 is really in the air of one of Britains' most iconic seaside towns.

Mike discovered that although the majority of the 6km route had relatively low concentrations, there was a 'hot-spot' measuring almost 100pbb on the busy North Road near the famous Royal Pavilion.



Top Class continuous ambient gas analysers from Top Gun analyser manufacturer!

Teledyne HQ, in San Diego, California

ET is the exclusive UK & Ireland distributor for Teledyne API (TAPI), perhaps the World's largest, and we think the best, manufacturer of real-time ambient gas analysers.

Our long-standing relationship with Teledyne API (and before that API) dates back almost 30 years. A relationship built on trust, success and a common goal; 'to provide the most reliable and best value-for-money gas analysers on the market, and to support them for life'.

Teledyne API benefits

- 2 Year 'no-quibble' full parts warranty on every new TAPI analyser (E and T series instruments and model 701 calibrators).
- 5 Year warranty on GFC wheels and analyser motherboards.
- Designed and built in the World's largest and most advanced gas analyser manufacturing facility in San Diego, California, USA.
- Extensive testing and QA/QC to TAPI's exacting ISO9001 standards prior to shipping from TAPI to ET.
- Full acceptance testing and calibration checking at ET prior to customer delivery.
- Used extensively in monitoring networks around the world, including the UK's AURN.

TELEDYNE API
Everywhereyoulook™

- Numaview on-board analyser software. This powerful, intiutive and highly infomatic GUI maximises the graphing, diagnostics and data presentation capabilities of the T-series instruments.
- Large capacity data storage, minimum of 100,000 records (even more in NumaView mode).
- Analyser support for life of instrument.
- Backed up by ET's team of fully factory trained and certified service engineers.

FUN FACT

Teledyne API are headquartered in San Diego, California, USA and just down the road from Miramar, which aviation enthusiasts and movie buffs might recognise as being the home of the world-famous Top Gun fighter jet training school. How cool is that?

The benefits of dealing with ET and having us service and maintain your monitoring equipment.

ET's extensive range of continuous, reference-method real-time gas and particulate monitoring equipment is rugged and robust and therefore, designed and built to last.

It is not uncommon for us to see instruments that we supplied well over 15 years ago still working reliably and within specification. This is testament to ET's philosophy of only sourcing and selling high quality instruments, and our instrument manufacturers stringent build quality standards and quality control.

Gold-standard reference method instruments, like the Teledyne API T200 NOx analyser sold exclusively in the UK and Ireland by ET are, by default, expensive pieces of scientific equipment.

Let's not forget we are measuring with parts per billion sensitivity and if anyone has ever taken the lid off an instrument

and looked inside, they will appreciate the complexity and high-technology engineering required to speciate and quantify pollution down to these trace levels.

Continuous gas and particulate analysers are just that, continuous. From the moment they are switched on, they are measuring continuously, 24 hours a day, 7 days a week, month in and month out. It is difficult to think of any other devices, other than perhaps computer servers and fridge-freezers for example, that are "always on", and these examples, from a mechanical and engineering perspective, are far less complicated.

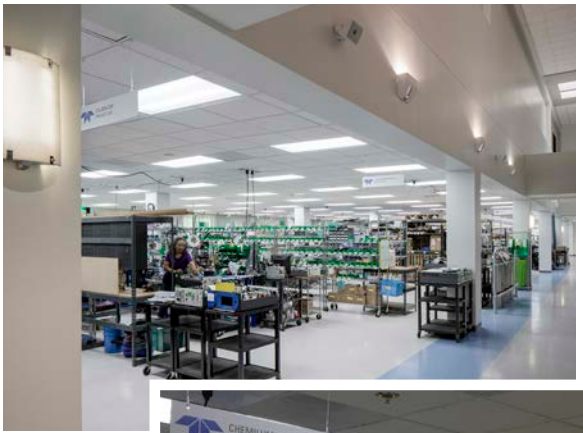
Using a hybrid of pneumatic, optical and electronic sub-systems, continuous gas and particulate analysers are constantly working hard, with valves, pumps and motors all at play, every second of every day and pneumatics have to remain leak-tight and optics clean to be able to keep working within specification.

All continuous gas and particulate monitors therefore require periodic maintenance and even the best made instruments will, at some point in their life, suffer breakdowns due to their reliance on mechanical components, many of which have moving parts.

At ET we firmly believe that choosing an equipment support unit is equally as important as choosing an instrument supplier in the first place. Teledyne API T and E series gas analysers sold and supported by ET come with a comprehensive 'no-quibble' 2 year warranty, and some key components such as motherboards and GFC wheels even come with 5 year warranty.

This is a fantastic example of an analyser manufactures confidence in the ruggedness and reliability of their products and far beyond the standard 1 year warranty offered by most other manufacturers. It is also provides total peace-of-mind in knowing that the manufacturer, and ET as their distributor, fully stands behind the products and the no-quibble warranty guarantee.

So, we have discussed the cost and complexity of gold-standard reference method analysers, like the Teledyne API T200 NOx analyser, the day-to-day mechanical and pneumatic demands placed upon them and the out-and-out sensitivity and precision with which they measure the criteria pollutants that the Government and Local Authorities are duty-bound to report on.



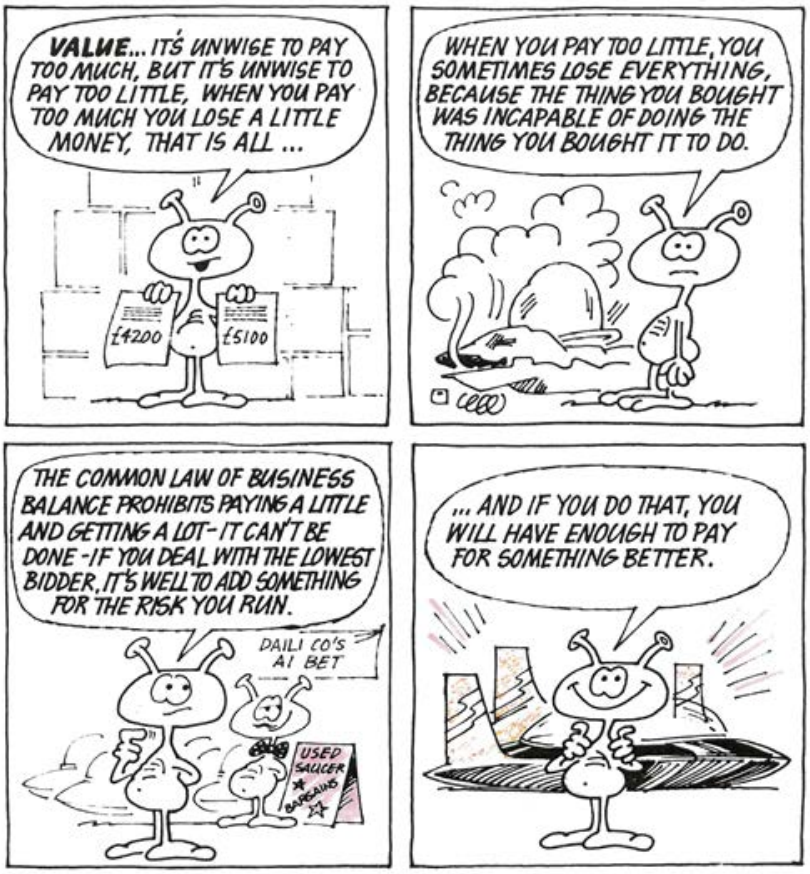
Calibrator Production line

Chemiluminescence (NOx) production line at Teledyne API

We now turn our attention on how customers should look to protect their expensive investments and how they can ensure analyser longevity, reliability and high data capture rates over the lifetime of the instrument, which would normally be as a minimum, 10 years.

Here is an analogy. Would you hand over your brand new (or nearly new) car to any old garage for servicing or repairs? Chances are you wouldn't and that you would want to protect your expensive investment and make sure that whoever is doing the servicing is fully trained, fully qualified, knowledgeable and competent and who understands your make and model inside-out. A continuous gas analyser, just like a car, should last a very long time provided that you have done your research properly and purchased a reliable brand in the first place and have it regularly maintained by a knowledgeable and reputable service provider.

And just like with cars and garages, not all gas analysers or service providers are the same!



The old adage that 'ultimately you get what you pay for' is true and also 'if the price looks too good to be true, it often is'.

So why deal with ET?

- ET is a long-established business (1983) and specialises solely in air pollution monitoring technology and servicing. We are a safe and dependable choice.
- We provide expert advice with regards to equipment selection and application support. We understand your monitoring and servicing needs and can guide you towards the best solution for your requirements and budget.
- Quality, health & safety and the environment are at the forefront of our business philosophy. This is backed up by our ISO certification and other accreditations, ISO 9001, ISO 14001, OHAS 18001, CHAS, Achilles, Cyber Essentials. What does this mean for our customers? Consistency, reliability, continuous-improvement, security, environmental awareness, employee and client safety and well-being and confidence and peace-of-mind.
- Our mainstream gas and particulate monitors are MCERTS and Defra MCERTS certified ensuring that they are completely fit-for-purpose and have been extensively laboratory and field tested.
- Our large and regionally based team of service engineers are fully factory-trained by our main monitoring equipment manufacturers (i.e. Teledyne API, Met One Instruments, Opsis and LGR). Therefore, nobody understands our technology better than we do or can support it as well as us.
- As well as equipment sales and after-sales support, our capabilities extend to professionally qualified electricians and F-Gas certified air-conditioning engineers. This ensures that our system builds, installations and all-important air-conditioning support is carried out to all necessary professional, safety, environmental and legal standards.
- We only supply and fit genuine manufacturer supplied spare parts to our instruments in our service contracts. Reconditioned spare parts are only ever fitted if it is impossible to source new spare parts due to age and obsolescence, and even then, these will always be genuine parts.

NEW product news

ET are pleased to announce that we have added 3 highly innovative products from Scentroid to our extensive product range

SCENTROID
Future of Sensory Technology

For highly accurate measurement of odour emissions such as H_2S, NH_3, VOCs, SO_2 and more, the Scentinal SL50 Compact Air Quality and Odour Monitoring Station is an ideal choice.

The Pollutracker TR8+ is a complete air quality mobile laboratory capable of measuring ambient H_2S, NH_3, Total VOC, and other chemical concentrations.

It comes with a touchscreen interface, datalogging and wireless transfer via email.

The DR1000 fully capable flying laboratory, is used to sample and analyse ambient air at heights of up to 150 meters above ground.

Air quality mapping, model verification, analysis of potentially dangerous sites are all made possible with the DR1000.

Ideal for Industrial applications

The latest advances in thermal/optical OC-EC particulate matter monitoring technology available from ET.

Sunset Laboratory Inc.

Cutting Edge Carbon Aerosol Particulate Analysis

ET formed a new distributor partnership with Sunset Laboratory Inc. earlier this year. Their range of OC-EC instruments for the measurement of particulate organic and elemental carbon are the only ones of their kind on the market today.

The Model-4G (field) and Model-5L (laboratory) thermo-optical OC-EC analysers provide accurate measurements of organic carbon and elemental carbon in particulate matter.

Model 5 The OC-EC Lab based Analyser

The time-resolution capability and laser-based pyrolysis correction techniques of these instruments provide refined information about particle origins, health exposures, and changes in air quality.

Model 4 OC-EC Field Analyser

NEW Micro-portable (M-GGA-918) for the measurement of Greenhouse gases

LGR have released a new version of their microportable greenhouse gas analyser, the MGGA. Whilst reporting the same gases, the M-GGA-918 performs high precision measurements of CH_4, CO_2 and H_2O thanks to the addition of a second dedicated laser for enhanced sensitivity.

As with all LGR-ICOS analysers, the M-GGA-918 is fast and simple to use which makes it ideal for field studies, compliance monitoring, air quality studies and soil flux studies, and wherever sensitive measurements of greenhouse gases are needed.

At 5.4kg the handbag-sized analyser is perfect for monitoring in any location be it on an aeroplane or out in the field with the great reliability you'd expect from an LGR instrument

L G R
Los Gatos Research
A MEMBER OF THE ABB GROUP

NEW Triple Isotopic Water Analyser

Human populations depend heavily on the availability of fresh water. Changing climatic conditions on a global scale can improve or diminish the availability of water. Scientists have developed a way to study climatic changes and the water cycle using measurements of the stable isotopes of oxygen and hydrogen, the components of water.

A World first - The NEW Triple Isotope Water analyser from LGR is based on OA-ICOS and combines relatively low cost, small size, low power consumption, and fast response. It also offers high absolute accuracy, rugged reliability, and automated operation. Unlike previous techniques, it requires no sample conversion with toxic reagents and they're simple enough to operate, that the researchers who collect the samples can make the measurements.

The LGR Triple Isotope Water analyser delivers state-of-the-art precision and accuracy for a cost that is much less than that of the nearest competitor.

Monitor Real Driving Emissions with the Opsis RDE On-vehicle testing system

Since the VW dieselgate scandal 3 years ago, we are all aware that laboratory base tests are not a true reflection of the emissions emitted.

Since then new regulations mean that motor manufacturers now have to test in ‘real life’ conditions rather than in a laboratory.

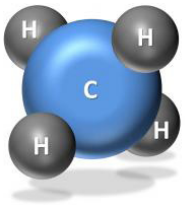
Since September 2017 new vehicles coming into the UK have to pass two new tests - The Worldwide Harmonised Light Vehicle Test (WLTP) and the Real Driving Emissions (RDE) test.

The RDE system from Opsis AB in Sweden is optimised for super-fast on-vehicle exhaust emissions monitoring of CO_2, NO and NO_2, but can also be configured to measure CO, CH_4 and even formaldehyde. The instrument is simply mounted on the rear of the car and the exhaust pipe is connected to the sensor unit. This is then connected, via an optical fibre, to the analyser, which is located inside the car. No exhaust is lead into the car.

The RD100 system monitors car emissions from all types of fuel. Diesel fuel cars usually emit higher levels of nitrogen oxides and particles. Normally, petrol fuel cars emit higher levels of carbon dioxide as well as particles. The RD100 measures exactly how much during the drive.

One OPSIS RD100 can measure several types of gaseous compounds, such as nitrogen oxide, carbon dioxide, ammonia, and several types of hydrocarbons. Furthermore, the system is easy to handle.

Methane monitoring *made easy*



Methane (CH_4) is the primary component in natural gas, typically making up over 95% of its composition. The main sources of industrial methane emissions come from oil and gas processing and transportation, and potentially soon in the UK now from hydraulic fracturing, or 'fracking'.

The typical background level in ambient air is around 2 ppm, but like the other main greenhouse gases CO_2 and N_2O, it is increasing with each passing year. Methane has a direct global warming potential (DGWP) 25 times greater than CO_2 over a 100-year timescale rising to 72 times that of CO_2 over a 20-year timescale.

Other than industrial sources, methane is naturally occurring in the environment from wide-ranging biogenic microbial activity in the soil and organic decomposition. Along with ammonia, a major emission source of methane is from agricultural livestock. The sources and sinks of methane are numerous in ecosystems and the measurement of these fluxes are important to ecosystems, atmospheric and earth scientists alike.

Emissions of methane may also contribute to regional air quality issues due to the photochemical formation of ozone.

There is therefore a clear and pressing need for more real-time methane measurements whether for leak detection and fugitive emissions at oil and gas and industrial plants, natural gas pipelines and transportation networks, at background trace gas monitoring stations and for methane flux experiments in the field.

There are many ways of measuring methane and these have traditionally been based on techniques such as flame ionisation detection (FID) and non-dispersive infra-red (NDIR).

Both of these older technologies have inherent problems and limitations. FIDs require hydrogen as a fuel gas and a source of zero air. Apart from the obvious health and safety risks of using and transporting hydrogen, keeping the flame of an FID analyser continuously lit is a challenge and users need to be well experienced in keeping these instruments running. Most people who have worked with FIDs will agree that they can be 'temperamental'.

NDIR instruments do not require hydrogen as a fuel gas but the measurement principle can suffer from cross-interference from water vapour and CO_2 and neither FID or NDIR is suitable for when utmost measurement precision and accuracy is required.

Since 2014, ET has been the exclusive UK and Ireland distributor for a measurement technology called Off-Axis ICOS (integrated cavity ringdown spectroscopy) pioneered, commercialised and sold by Los Gatos Research (LGR), now part of the ABB Group.

During this time, ET has sold in excess of 100 LGR instruments, the vast majority being greenhouse gas analysers measuring methane, as well as CO_2 and H_2O simultaneously.

The LGR Greenhouse Gas Analyser (and the methane only variant), all of which are based on the Off-Axis ICOS measurement principle (4th generation of CRDS) offer a great many benefits to users, however by far the greatest benefits.

Methane monitoring *made easy continued..*

- **Their overall build quality and ruggedness.**
- **There is no need whatsoever for hydrogen fuel gas or zero air**
- **Their relevant insensitivity to vibration and temperature changes.**
- **Ease of use and user serviceability.**
- **Long term reliability.**
- **Enhanced performance and unparalleled measurement precision.**
- **No need for regular calibration.**

Main Applications:

Natural gas leak detection

Soil and vegetation flux measurement

There are also three main instrument packaging/form factor offerings:

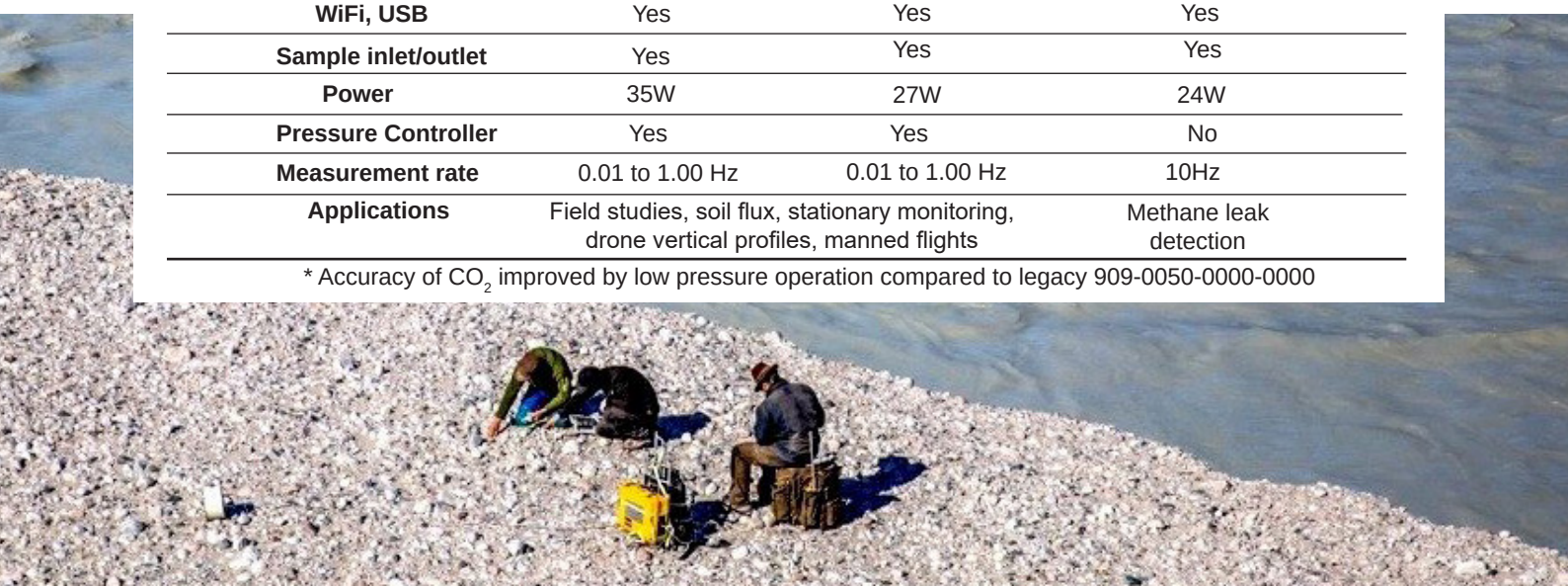
19" rackmount for long-term use in enclosures, shelters and laboratories (or in vehicles, trailers and aircraft) and two mains or DC powered portable versions known as Ultraportable, and Microportable (15 kg and <6kg respectively) for field applications where utmost portability, size and weight considerations are key.

LGR Microportable CH_4 Analyser – Comparison Table

The updated 918 series portfolio is presented in the following table. Please refer to datasheets for detailed performance specifications:

	M-GGA-918 (CH_4, CO_2, H_2O)	**M-GPC-918** (CH_4, CO_2, H_2O)*	**M-LDS-918** (CH_4)
Number of lasers	2	1	1
Precision assessment (refer to datasheet)	Optimized for CH_4 and CO_2	Optimized for CH_4	Optimized for CH_4
MIU, Serial, Ethernet, video	Yes	Yes	Yes
WiFi, USB	Yes	Yes	Yes
Sample inlet/outlet	Yes	Yes	Yes
Power	35W	27W	24W
Pressure Controller	Yes	Yes	No
Measurement rate	0.01 to 1.00 Hz	0.01 to 1.00 Hz	10Hz
Applications	Field studies, soil flux, stationary monitoring, drone vertical profiles, manned flights		Methane leak detection

* Accuracy of CO_2 improved by low pressure operation compared to legacy 909-0050-0000-0000



NEW product news

Smart probes that YOU can easily configure for YOUR specific needs

GrayWolf Sensing have taken current sensor technology to a whole new level with their new range of smart probes. GrayWolf's smart probes will be available in the UK via Enviro Technology Services in the new year.

ET have been UK distributors for GrayWolf Sensing solutions for 15 years. Their new DirectSense II probe range exploits 20 years of experience as the market leading manufacturer of portable Indoor Air Quality (IAQ) instrumentation. These cutting-edge air monitoring probes accommodate from two up to eight plug-and-play smart sensors into a single hand-held, desktop or wall-mounted housing. You can choose from 25 different indoor air quality, green building, industrial hygiene and HVAC parameters including; TVOCs (PID), Carbon Dioxide (NDIR), Carbon Monoxide, Ozone, Nitrogen Dioxide, Ammonia, Sulphur Dioxide, Chlorine, Hydrogen Sulfide, %RH, °C/°F and many others.

Indoor air quality, green building, occupational hygiene and HVAC applications require a broad range of parameters to be quickly spot-surveyed and to be accurately monitored over time. The DirectSense II probes not only allow for a very broad range of applicable parameters, but they can easily be expanded for additional parameters.
Sensors are interchangeable to target the ideal range needed for the specific application.
Connection can be made via cable, bluetooth wireless and / or wifi.

SMART compensation,
SMART warnings,
SMART logging,
SMART alerts.
SMART!

Benefits include:

Plug-and-play sensors to fit your application.

- Smart PID sensors for low (IAQ range) or high (toxic exposure range) Total Volatile Organic Compounds (TVOCs)
- Smart NDIR sensors for low (IAQ range) or high (toxic exposure range) Carbon Dioxide (CO_2)
- Smart electrochemical sensors for CO, O_3, NO_2, NH_3, H_2S, SO_2, O_2, Cl_2, HCl, HCN, H_2 and much more
- Smart T/%RH sensors which can also display/log pressure-corrected dew point, absolute humidity, specific humidity, etc.
- Handheld, tripod-mounted, case-mounted, desk-mounted, wall-mounted.
- Interface with rugged purpose-built meters, with tablet computers and/or with your own Windows laptops or desktops.

A release date for the NEW Directsense II Smart Probes in the UK will be announced via our website shortly.

Continuous Emissions Monitoring Systems CEMS

ET have been designing, installing and supporting high quality CEM systems for 35 years. With this kind of experience under our belts, we've learnt a thing or two along the way.

We only supply CEMS that are of high quality, offer high reliability, are internationally approved and most importantly deliver maximum customer value and benefits. This includes minimum operator maintenance and low cost long-term ownership.

With this in mind ET are the sole distributors of Opsis CEMS in the UK (and Ireland), a relationship that has lasted over 30 years.

To this day, Opsis CEMs are still operating amongst the market leaders. Something they've achieved by focusing on the customer requirement coupled with continuous research and development. OPSIS continues to lead the way and set the standard in gas monitoring.

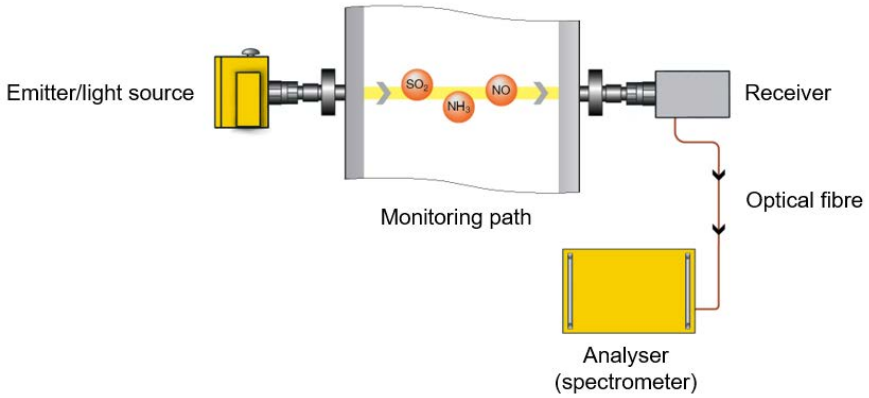
ET can provide you with the following services for CEMS:

- Application appraisal and site surveys
- System design
- Project management
- Systems integration
- Installation, commissioning, training
- Tailored service & support contracts

The Opsis DOAS Technique

The basis of the 'DOAS 'principle used by OPSIS to identify and measure concentrations of different gases is scientifically well established. DOAS is based on transferring a beam of light from a special source, over a chosen path and then using advanced computer calculations to evaluate and analyse the light losses from molecular absorption along the path. Using the DOAS method, different gas concentrations can be calculated with high accuracy.

D ifferential
O ptical
A bsorption
S pectroscopy



DOAS is a well-established principle for gas concentration measurements, as evidenced by numerous approvals and thousands of DOAS systems deployed by OPSIS and its representatives throughout the world.

What sets an Opsis CEMs apart from the others

- 30+ years in business, thousands of systems installed worldwide
- One system for all components including Hg
- Combines the benefits of UV/FTIR DOAS and TDL technology
- Best performance according to QAL 1 certification
- Longest calibration interval according to QAL 1 certification
- No sampling required, non-contact measurement system
- Operates with a minimum of maintenance
- Low energy consumption
- Internationally approved
- Serviced by highly skilled service network

Why purchase an Opsis CEM system from ET?

Benefits of the Opsis CEM system

- cross-duct, non-contact, non-extractive
- no sample system of any kind required
- measure multiple gases over multiple measurement paths with one analyser
- add additional gases easily and inexpensively including Mercury (Hg) and Hydrogen Fluoride (HF)
- MCERTS approved

With extensive knowledge of UK and European standards, ET will work with you to make sure that our systems meet your exact requirements and provide years of reliable service

ET Support

- regional / local engineers
- dedicated telephone support
- remote diagnostics available to contract customers

ET Service

- comprehensive and predictable, budget friendly
- simple but effective

We're only as good as our staff - Testimonials

ET has had some great feedback from our lovely customers recently and we thought we'd share them with you.

The council have been using Enviro Technology Services for many years. They have supplied and installed a number of air quality analysers for the council. The council also make use of their servicing and maintenance contracts. The service has always been superb. The staff are friendly and happy to give advice and guidance. In addition services have always been above and beyond, especially in relation to tender applications and ensuring they provide a great service.

Terry Vincent, Environmental Health Technical Officer @ Welwyn Hatfield Borough Council

Very happy with the service provided by yourselves at ET. Our officers have a fantastic working relationships with the engineers, admin assistants and tech support and all content thank you!

Maria Godfrey, Caerphilly Council

I am really happy with the service ET provide, the response time is brilliant and the advice given always professional and apt.

Regards, Dr Jolanta Obszynska, Leicester City Council

Falkirk Council have found ET offer an excellent level of support for the stations covered under contract. For example ET have attended sites within the 48 hour call out period when analysers have failed and have also offered remote technical support to Local Site Operators when required. Overall the council is very satisfied with the level of service we have received from ET, particularly in regard to quick response times for analyser failures as this assists us in achieving high data capture across our automatic air quality monitoring network.

Tanith Allinson, Falkirk Council

AQE 2018 workshops

In addition to the advanced monitoring solutions we'll be demonstrating on the stand, our industry specialists will be giving workshop talks on some of the ground-breaking technology used in our systems, on both days of the show. ET workshops are as follows:

Day 1

Dynamic measurement of PBL (Planetary Boundary Layer) and other environmental applications of MPL (Micro-Pulse LiDAR). How the detailed atmospheric information produced by MPL can help us understand the relationship between PBL height and air pollution episodes. **1:30pm, Room 1**

OPSIS System 400, One CEM System, Three Solutions - Cross-Stack, Fastloop and Hot/Wet Extraction. A high technology CEM system for monitoring gases compounds with superior performance and high reliability. **3:30pm, Room 4**

Day 2

Ambient odour monitoring for industry – Practical application of the Scentroid SL50 and SM100i to produce boundary measurements in odour units. The integration via a neural network learning algorithm of fixed monitoring techniques (SL50) and GPS located intelligent olfactometry (SM100i) to determine odour impact at sensitive receptors and inform odour management plans. **11:00am, Room 2**

Planes, Trains and Automobiles - Innovations in Mobile Air Quality Monitoring. An introduction to mobile / portable monitoring solutions available from ET including: the NEW NO2 SmogBox, The Smogmobile, The DR1000 flying laboratory and the UGGA – capable of measuring greenhouse gases anywhere. **13:30am, Room 4**

Come and visit us at the following conferences:

enviro technology services

tel: +44 (0) 1453 733200 **sales@et.co.uk** **www.et.co.uk**

Registered Office: Kingfisher Business Park, London Road, Stroud, Gloucestershire, GL5 2BY, UK