

City News

Spring 2002

Quality Gas Detection



Welcome

Our business year closed at the end of April 2002, despite it being a year marked by the terrible events in America, which undoubtedly affected many businesses globally, I am pleased to report that we saw good growth in sales compared to the previous year. This growth was mainly attributed to the performance of our rapidly growing Automotive and Medical market segments.

During the year we strengthened our sales team and the new appointments have undoubtedly increased our level of global support for our Customers. Also in recent months we have launched a number of new products, which we expect will help address market needs. See inside for more details.

Do enjoy this edition of City News and let me take this opportunity to thank you for your continued custom, support and interest in our products.



Brian Roake - Sales and Marketing Director

New Ammonia CiTiceL®



City Technology are pleased to announce the introduction of a new ammonia gas sensor; the 7NH CiTiceL®. The 7NH has been designed to meet the exacting requirements of fixed-point ammonia detection.

The 3 electrode sensor, which is available in the popular 7 Series Compact CiTiceL® format, has an normal operating range of 0-200ppm ammonia, an operating life of 2 years and a temperature range from -40°C to +50°C. The performance at low temperature makes the 7NH ideal for use in refrigeration applications. Based on completely new electrochemistry the 7NH has very low drift, is tolerant to continued exposure to ammonia and is very stable over time so making it ideal for use in applications where there may be a continuous low level background of ammonia, or occasional high peaks in concentration.



The 7NH sensor is designed to operate in a biased mode with the sensing electrode at a more positive potential than the reference. When a bias potential is first applied it will take the sensor a number of hours to become stable. To overcome this time-lag City Technology can supply the 7NH with a bias board (as 7BNH) that keeps the sensor biased during transit and storage. When installed the sensor is stable and ready for use immediately.

The 7NH is "pin compatible" with existing 7AM CiTiceLs® and can be used as a direct replacement for these sensors.

For more information please contact Tamsin McGaughey on +44 23 9228 8146 or sensors@citytech.co.uk

Visit our new website

www.citytech.com



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- Helium cross sensitivity in oxygen sensors
- New MCO MediceL® for smoking cessation programmes
- New poison resistant P90 pellistor bead
- Ambient Environmental Air monitoring sensors

NEW website at - www.citytech.com

P90 CiTipeL® Combustible Gas Sensors



The P90 CiTipeL® has been introduced as a direct drop-in replacement for the 90N. The P90 incorporates the patented planar bead technology of the 4P range so giving the sensor improved shock resistance and orientation insensitivity. The new bead chemistry of the P90 makes them much more resistant to silicone poisons.



The P90 CiTipeL® is available with 3 types of connection: flying leads, 6mm and 25mm pin connections.

Meet City in 2002

City Technology will be visiting a wide range of events in 2002. Including:

AIHA Show	3-5 June
9 th IMCS	7-10 July
EuroSensors XVI	15-18 Sept
Automechanika	17-22 Sept
Sensor Expo	24-26 Sept
Miconex 2002	24-27 Sept
ISA 2002	21-24 Oct

For a full listing please visit our website

www.citytech.com



SAFETY

Oxygen Sensors for use in Helium Containing Environments

Oxygen sensors with capillary diffusion barriers are widely used to monitor for oxygen depletion in industrial safety applications. However there are certain environments in which these capillary sensors can give false readings – most importantly when exposed suddenly to high concentrations of helium, for instance caused by a spill or leak.

Helium is used widely in industrial applications, for example in Magnetic Resonance Imaging equipment in hospitals and particle accelerators. Although not toxic, if helium is spilled or released in high levels into a confined space it can result in oxygen depletion. If capillary oxygen sensors are being used to monitor the levels of O₂ they can give readings that are high – this is potentially dangerous when monitoring oxygen depletion.

The reason for this phenomenon is down to the small size of the helium molecule. When present in high concentration the helium molecules diffuse rapidly through the capillary into the oxygen sensor and at the same time allowing more rapid diffusion of the much larger oxygen molecules. The result of this process is more oxygen molecules enter the sensor which results in artificially high readings.



To reduce this risk when measuring oxygen in ambient environments where helium leaks and spills could occur a partial pressure sensor can be used. These sensors have a solid membrane diffusion barrier in place of the capillary and these do not suffer the same effects as the capillary sensors.

City Technology has a range of partial pressure oxygen sensors that would be suitable for oxygen depletion applications in confined space. For example the AO2 sensor has a range of 0-100% oxygen, a resolution of 0.01% and a life time of 2 years in 20.9% oxygen.

For more information please contact Tamsin McGaughey on +44 23 9228 8146 or sensors@citytech.co.uk



EMISSIONS

Environmental Ambient Sensor Range



In addition to the CTL 5-Series and 3-Series emissions sensors, which were developed specifically for classical flue gas analysis applications where the pollutant species (CO, NO, NO₂, SO₂) are monitored at point of source, CTL also has a range of sensors within the emissions series, which have been developed for ambient environmental applications - the Envirocel®.

The gases of interest are carbon monoxide (CO), nitrogen dioxide (NO₂), sulphur dioxide (SO₂) and ozone (O₃). Whilst the gases of interest are similar to those in flue gas applications, the measuring task is very different.

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This is well illustrated by the typical measuring ranges:

	Min. Range	Resolution
CO	0- 500 ppm	100 ppb
NO ₂	0 - 2 ppm	20 ppb
SO ₂	0 - 10 ppm	25 ppb
O ₃	0 - 2 ppm	20 ppb



When measuring down in the parts per billion (ppb) range, it is essential that the baseline signal noise is extremely low. CTL therefore employs a 4-electrode sensor design, the 4th 'auxiliary' electrode significantly improves the temperature performance of the sensor.

Global interest in monitoring air quality in urban areas is increasing rapidly as cities expand and traffic levels multiply. The pollutants measured are responsible for the generation of photochemical smog and have major implications for breathing related health issues. These sensors are ideal for use in urban monitoring stations, which can simply give an accurate, indication of air quality or even be incorporated into sophisticated traffic control systems.

It is hoped that monitoring stations become as common as traffic lights in urban areas with the information gained used to take positive action that would reduce the detrimental effects to health, damage to crops and provide better atmospheric conditions for generations to come.

For more information please contact Tamsin McGaughey on +44 23 9228 8146 or sensors@citytech.co.uk



Carbon Monoxide MediceL[®] for Smoking Cessation Programmes

MEDICAL



The MCO is a new carbon monoxide sensor for use in breath analysers used to monitor CO in smoking cessation programmes. The use of breath monitoring as an aid to stopping smoking is a relatively new application, however it is possible to assess the progress by a reduction in CO on the breath. Smokers can see an almost immediate reduction in CO levels in expired breath when they stop smoking, a fact that

can often encourage them to keep going as they can see an improvement. Monitoring CO on the breath is also becoming used as a way of "checking" children to see whether they have been smoking.

Typically non-smokers have very low levels of CO on the breath, <5ppm, however in heavy smokers this can be up to 50ppm.

The MCO MediceL[®] has a two year life and maximum range of 200ppm CO. It has a resolution of 1ppm, so making it ideal for use in the typical breath CO concentrations of smokers (10 – 50ppm). The MCO also contains a filter to remove alcohol that may be present on the breath so preventing cross interference and ensuring the accuracy of the result.

For more information please contact Tamsin McGaughey on +44 23 9228 8146 or sensors@citytech.co.uk

New Face in the Emissions Team

We have recently welcomed Katja Sendig to the Emissions Sales Team where she is the new Customer Services Representative.

Katja, who comes from the Dresden area in Germany, was educated at the Technical University in Dresden where she studied English and German. She has previously worked in Customer Services with an Internet recruitment company.



Product Data Sheets

To view our complete range of product data sheets and to see details of all our sensors visit our new website at:

www.citytech.com



Dual CO/NOx Sensor



The Capteur CAP0710 is a mixed metal oxide semiconductor dual gas sensor for carbon monoxide and nitrogen dioxide designed for use in vehicle climate control systems. The sensor monitors the quality of outside air and alerts the vehicle's climate control system if this deteriorates. This will provoke a number of control options such as switching on re-circulation or diverting intake air through a filter.



New Appointment focuses on Asian Market

The recent appointment of Dr Eric Tan as Business Development Manager for Asia underlines our commitment to serving the growing markets in that part of the world.

Qualified with a PhD in Materials Science from Imperial College London, Eric has worked in sales and marketing within the instrumentation business since 1995. He has gained considerable experience covering the Asian market, notably in Japan, China, Korea, Taiwan and the Middle East.



AUTOMOTIVE



Nitric Oxide Sensors for Exhaust Gas Analysers

City Technology supply two nitric oxide sensors for use in exhaust gas analysers. The NX1 is a high performance sensor developed for analysers used in vehicle inspection programmes, whereas the NX3 is ideal for use in repair and maintenance applications.

Nitric oxide (NO) is an important polluting gas from internal combustion engines as it is one of the major "SMOG" forming pollutants emitted. As well as contributing to the formation of "SMOG", NO is highly toxic to humans and high ambient levels in the atmosphere can lead to ill health. NO contributes to raised ozone (O₃) concentrations at ground level which is one of the main causes of "SMOG". Ozone can cause or aggravate asthma and other respiratory conditions.



To deliver improved performance in this very demanding application City Technology has re-engineered the NX1 sensor. The new sensor has faster response times, improved stability, temperature and pressure performance and accuracy.

By completely re-designing the sensor housing of the NX1, the high pressure dependency has been eliminated and response time decay, due to dehydration in extremely dry conditions, has been overcome. The new design can operate for 2 months in 35°C and 0% RH without failing the BAR 97 response time specification.

The improvements in performance, notably response time of $T_{95} \leq 4.5$ seconds, is due to the use of a new sensing electrode which has an increased activity to NO. The new design also shows fast recovery following exposure to high concentrations of NO.

For more information please contact Tamsin McGaughey on +44 23 9228 8146 or sensors@citytech.co.uk

New Team for IRidium® and Automotive Sales

Due to increasing interest in our innovative automotive infrared bench technology, IRidium®, we have put together a new team to look after the sales and support of our automotive products. Ken Bernhardt is responsible for the business in North America with Alistair Colville covering Europe and Eric Tan covering Asia. They have technical back-up from Stephen Swindley and Malcolm Woodcock.

You can contact Ken, Alistair or Eric on:

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