

City News

Spring 2001

Quality Gas Detection



Welcome to the spring 2001 edition of the City Technology newsletter "City News".

Over the last 12 months we have been busy on many fronts, not least making progress in the quality of our products. We have introduced a new range of oxygen safety sensors (OX series) and developed a range of very successful combustible gas sensors, which have superb poison resistant characteristics for both portable and fixed applications.



David Baines - Sales and Marketing Director

We have also been busy developing new emissions sensors; but you will have to wait until the summer to learn more about these!

Infrared sensors have been high on our agenda with our new five gas automotive exhaust bench IRidium™ coming to the market with more products in the pipeline.

Superior combustible gas sensors – the 4P CiTipeLs®

City Technology are well known as suppliers of electrochemical CiTiceLs® for detecting oxygen and toxic gases, but many are not aware that we also produce a large range of combustible gas sensors – CiTipeLs®. These detect the presence of combustible gases in high risk confined environments such as mines.

The range of 4P CiTipeLs® incorporate the latest planar catalytic bead sensor technology and measure combustible gases or vapours in air up to their Lower Explosive Limit (LEL). The 4P50, 75 and 90 incorporate novel and improved chemistry and sensor design to ensure improved performance with superior resistance to silicone poisons.

City's 4P50, 75 and 90 pellistors offer:

- increased H₂S and silicone poison resistance
- excellent shock resistance
- reduced power consumption

These factors combine with the core benefit of the 4P range: the existing North American and European approvals (UL, CSA and CENELEC) which save both time and resources in the development of instruments.



In this issue:

- Superior combustible gas sensors - the 4P CiTipeLs®
- In-Q-OX medical oxygen MediceL®
- IRidium™ infrared bench for automotive gas analysis
- The Importance of Counter Electrode Design
- Safety oxygen CiTiceLs®
- The need for careful sensor selection for emissions applications

**See us at Sensor 2001, 8-10 May,
Nuremberg - Hall 1, booth 240**

Ready to use Biased Sensors

For ease of use in the field and short start up times, City Technology can offer sensors requiring a bias in a ready biased user-friendly format. This is achieved with the use of a battery powered bias board. Batteries are 3 volt and have an expected life of three months.

To order sensors with bias boards simply use the short codes as listed below. A deposit is charged, which is credited to your account on return of the board. A small charge is applied to cover the cost of new batteries and administration.



Field ready sensors are available in 3 series, 5 series and 7 series formats in the following gas types:

3 and 7 Series

Ammonia - NH₃
7BAM
A7BAM

Ethylene Oxide - C₂H₄O
7BETO

Hydrogen Chloride - HCl
7BHL

Nitric Oxide - NO
3BNF/F
3BNT
7BNT

Medical

Nitric Oxide - NO
MNO-1B
MNO-2B

5 Series

Nitric Oxide - NO
5BNF



SAFETY

City's safety oxygen CiTicels®



City's comprehensive range of electrochemical oxygen CiTicels® has recently been enhanced by the addition of three new sensors within its range for safety applications. The 4OX(1), the 4OX(2) and the 7OX incorporate new sealing mechanisms that have been designed to eliminate stress points in the moulding. This makes them especially robust and reliable for integration within instruments for both portable and fixed safety applications.

City's extensive range of oxygen CiTicels® has been developed for a wide range of applications in addition to safety. These include emissions monitoring, automotive gas analysis and medical applications.

The range include sensors with lifetimes from 9 to 24 months, and offer detection from trace levels at 0-2 ppm, to those designed to operate in 100% oxygen. Each sensor is customised according to its particular application: compactness is a requirement for portable instruments, while chemically-resistant housings are a prerequisite for emissions gas monitoring. City works with customers to provide a sensor with optimum performance in any given operating environment.

For more information please contact Brian Robson on
+44 23 9228 8114 or brian.robson@citytech.co.uk



AUTOMOTIVE

The IRidium™ Infrared bench for automotive gas analysers – speedy and compact

An ultra-compact and versatile combination of gas sensing technology, City's IRidium™ infrared bench provides OEMs with ultra-fast sensing technology for instruments used in the inspection and maintenance of vehicles and in the Repair/Aftermarket sector. The <30-second warm up period increases vehicle throughput and operator productivity, a measurable benefit for the end-user.

Integration with other analytical instrumentation is easy as the IRidium™ measures just 32mm x 42mm x 150mm and has no moving parts.

Five gases are detected: hydrocarbons; CO and CO₂ via infrared; and NO and O₂ by electrochemical sensors. IRidium™ is a low power device with an average power consumption less than 1 watt, and has a wide range of input voltages from 8 to 36 volts DC.

OEMs benefit from user-friendly interfaces and custom manifolds as well as the full range of approvals: ASM/BAR 97. Whilst the IRidium™ has been developed with automotive gas analysers in mind, it is suited to a wide range of applications.



For more information please contact Stephen Swindley on
+44 23 9228 8133 or stephen.swindley@citytech.co.uk

EMISSIONS



Why it is important to choose the right sensor for emissions applications

We have had an increasing number of requests from customers asking if it is possible to use toxic and oxygen CiTiceLs[®] from our range of "safety" sensors for flue gas monitoring. As a result of these requests we have completed extensive testing of our safety (3, 4 and 7 Series) and medical sensors (MediceL[®]), alongside our 5 Series emissions range, in flue gas environments.

These results clearly show the 5 Series emissions sensor have superior performance in the flue environments. Figure 1 shows the drift of emissions and safety sensors when operated in a flue gas environment.

The 5 Series CiTiceL[®] has been developed specifically for the demanding conditions of flue gas monitoring. Using high activity electrodes and on-board filters ensures long term performance.

Our technical support staff are able to give advice on the selection of sensors for any application. Please contact them if you require advice.

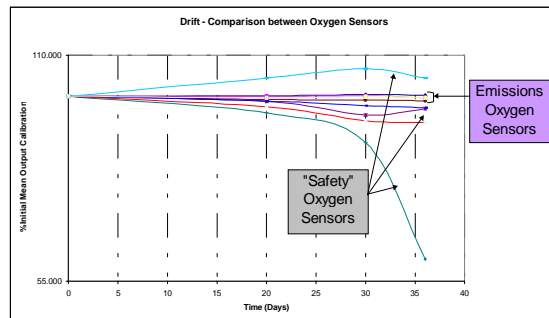


Figure 1

For more information please contact Jason Kerr on +44 23 9228 8110 or jason.kerr@citytech.co.uk

Tell us what you think!

City Technology are keen to provide the most effective customer service. To obtain our customers views we have recently started sending customer response cards with all our product shipments. Since launch we have had a steady stream of responses and, as a result, in one case we have been able to improve the service we offer to a particular customer.

Please continue to return these cards.

For more information please contact Jayne Bevis on +44 23 9228 8125 or jayne.bevis@citytech.co.uk

MEDICAL



In-Q-Ox - New medical oxygen sensor for use in incubators



The In-Q-OX O₂ MediceL[®] is ideal for integration into all types of incubators. The sensor measures levels of O₂ delivery within an incubator, which clinicians adjust over time to suit the needs of the infant's treatment programme. Being an electrochemical sensor, the In-Q-OX requires no power to operate which makes it especially suitable for integration into battery-powered transport incubators. It also has a wide operating

temperature range from -20°C - +50°C and in-built temperature compensation. It can operate in a range of 0-99% relative humidity which makes the sensor ideal for use within the humid environment of infant incubators.

The In-Q-OX O₂ MediceL[®] is optimised for long life in environments of up to 100% oxygen. For use in an area where measurement accuracy and reliability are crucial to patient well-being and care delivery, the In-Q-OX has a fast T₉₀ response time of <5 seconds and excellent long-term stability. The sensor's integral Molex connector makes it compatible with a wide range of incubator products.

For more information please contact Teresa Standen on +44 23 9228 8109 or teresa.standen@citytech.co.uk

Low Methanol Cross Sensitivity H₂S Sensor

In response to requests from customers we have designed two H₂S CiTiceLs[®] with low cross sensitivity to methanol – the 3HH/LM & 7HH/LM.

Low cross sensitivity to alcohols is important in a number of applications where there could be background levels present, for instance where methanol is being used as a de-icing agent.

We now accept payment by Credit Card

You can now buy sensors with your credit card. As from January 2001 we accept payment with Visa, MasterCard or American Express. Payments can be made in £ Sterling, US\$ or Euros.

For further information please contact Jayne Bevis on +44 23 9228 8125 or jayne.bevis@citytech.co.uk



TECHNOLOGY

The Importance of Counter Electrode Design

The design of the counter electrode within an electrochemical sensor is important in ensuring the performance of the device. Of particular relevance is the availability of oxygen at the counter, where it is reduced to water.

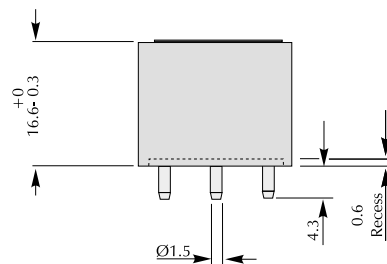
If there is insufficient O_2 present at the counter, polarisation of the electrode will occur. Alternative, undesirable counter reactions will replace oxygen reduction as further polarisation takes place, possibly leading to H_2 evolution. Ultimately, such effects can lead to significant degradation in the performance of the sensor.

The patented design of City Technology electrochemical sensors ensures that there are diffusion paths for atmospheric O_2 to reach the counter electrode. The main access mechanism is via hydrophobic channels in the counter electrode backing tape. O_2 from the atmosphere enters the sensing electrode tape and diffuses into the counter tape in an annular region where the two backing tapes are brought into contact.

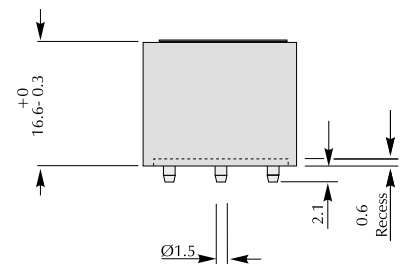
Not all electrochemical sensors utilise the same design and so may be prone to problems caused by a lack of O_2 at the counter electrode.

New "Short Pin" 4 Series CiTiceLs®

Our range of 4 Series CiTiceLs® are now available in a "short pin" option. In the "short pin" versions the connecting pins protrude 2.1mm from the base of the sensor compared to 4.3mm in the "full length" version (see below). Apart from the reduced pin length the sensors remain the same in every other respect.



Normal 4 Series CiTiceL®



"Short Pin" Version 4 Series CiTiceL®

The benefits of having shorter pins will ensure flush fits to PCBs and remove the need for customers to manually cut pins to length during assembly of sensors into instruments.

City add barcodes to product labels

We will be introducing barcodes on all our sensor labels over the coming weeks. The barcode will hold serial number and date code information on each individual sensor and will mean we can track sensors quickly and efficiently. This will be of particular use for our Quality group whose aim is to be able to link a returned sensor to all the production and test data on our database.

For more information on any of these articles please contact City Technology at:

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