# ATEX and Beyond!

What does ATEX Certification mean to users? To find out about ATEX and what is next, ask a manufacturer. They have to know and know what is coming – and get it right.

Product Introduction Director, Roger Riley at Geotechnical Instruments discusses his view of the global patch-work of standards and certification.

Site operators and users need certified equipment which allows them to operate safely and in compliance with the relevant legislation. Inevitably operators rely on manufacturers to provide equipment to the correct standards. In the area of explosive atmospheres the relevant regulations are the ATEX requirements in Europe. Explosive atmospheres can be very dangerous. As a manufacturer, we take our responsibility extremely seriously and have an obligation to make sure that our products are safe to use.

For instruments, equipment, and tools to be safe and marketable they must meet all relevant safety standards and perform to customers' expectations. Meeting all of the required standards has a substantial financial cost but safety and duty of care are not up for debate. Certification confirms to users that equipment will work safely in their environment. However, standards can vary from country to country and manufacturers have to know the relevant safety standard and who confirms certification and compliance. Knowing is critically important to being able to supply appropriate product.

The main certification standards for explosive atmospheres are ATEX for Europe, UL for the USA and CSA for Canada. All of these standards are now based on interpretations of the IEC (International Electrotechnical Commission) standard. They use the 'zones' method of certifying equipment depending on how likely it is to be used in an explosive atmosphere. This
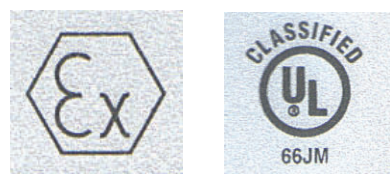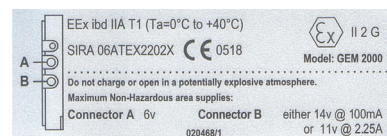
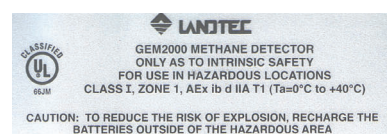approach was pioneered in Europe, but is now being adopted in other parts of the world.

A GEM 2000 Plus Gas analyser with its European ATEX Label

The European ATEX Label (expanded)

A GEM 2000 Plus Gas analyser with its USA UL Label

The USA UL Label (expanded)

TABLE: IEC-based ATEX Zone Definitions

Zone 0	Hazard is normally present, continuously
Zone 1	Hazard can be present intermittently
Zone 2	Hazard is present abnormally

Unfortunately at present the exact wording of the standards can vary around the world. This can involve expensive retesting to obtain certification in other countries. In some cases it can require a slightly different design for some countries. Even where countries have nominally the same standard, the interpretation of it can vary, leading to changes in design being required. Certification would be easier if there was a universal standard, and we are moving towards one, based on the IEC standards, called IECEx.

Beyond ATEX, Next IECEx?

Twenty six countries have so far signed up to the new IECEx certification

standard. This is not a global certification but it is a step towards harmonization. The route for manufacturers is firstly to achieve IECEx certification in a participating country. The next step is to apply for, and pay additional administration fees, for that to be recognised in each other participating country, country-by-country. This aims to avoid repeated submission and testing for each IECEx participant country.

As more countries sign up to IECEx we may expect to see and hear more of it. Their website offers more information and the latest list of participating countries at: www.iecex.com It states, 'The IECEx is the IEC scheme for the certification to standards for electrical equipment for explosive atmospheres. The objective of the IECEx Scheme is to facilitate international trade in equipment and services for use in explosive atmospheres, while maintaining the required level of safety:

• Reduced testing and certification costs to manufacturer
• Reduced time to market
• International confidence in the product assessment process
• One international database listing
• Maintaining International Confidence in equipment and services covered by IECEx Certification"

The IECEx countries listed on their website in mid-June 2007 included: Australia, Canada, China, Czech Republic, Denmark, Finland, France, Germany, Hungary, India, Italy, Japan, Korea, Netherlands, New Zealand, Norway, Republic of Serbia, Romania, Russia, Singapore, Slovenia, South Africa, Sweden, Switzerland, UK and USA.

Notified Bodies

An advantage of being a UK-based manufacturer is the UK's strong focus on certification and safety standard compliance. We use the UK government monitored SIRA, the UK's independent Notified Body known for its rigour, for ATEX certification. This puts us, as a UK manufacturer, in a good position to meet the standards elsewhere.

We are certified to ISO 9001 and have regular audits to maintain this standard. However, ATEX requires additional auditing over and above ISO requirements to ensure we are manufacturing to the certified standard. This involves making sure that all of the critical safety parts in the

ATEX Logo and UL Logo

ATEX label content varies with product type

equipment are correct.

Service
Maintaining certification during product development is essential. In addition, our service teams operate to the same standards as our manufacturing teams so that we maintain products to ATEX standards during servicing. This is important for customers so they can be certain of continued safe operation and continue to maintain compliance.

Manufacturer Training
At the 'coal face' safe use of product ultimately depends on users, at all levels, being adequately trained. Ensuring training provision and adherence is an operator's responsibility. However, as manufacturers, we can help to ensure that users are adequately trained in the safe use of our equipment. We regularly give training courses on the correct use of our equipment and also give awareness seminars on the ATEX standards.

Operator Responsibility
Operator-specific and site-specific safety procedures are the site operator's responsibility. The UK's new DSEAR regulations require operators to zone their sites according to the risk of an explosive atmosphere being present. Operators should then select equipment that is certified for use in each zone. Other countries will have similar regulations. It is possible to use equipment that is not certified, but the operator must perform a risk assessment and ultimately takes the responsibility of using the equipment.

The CE Mark (Conformité Européene)

CE 0518

The CE Mark

In addition to ATEX certification, all equipment supplied in Europe must have a CE mark. This is mandatory. It confirms products meet all Product Directives and puts the onus on manufactures to know what standards apply and to comply with them. Without a CE mark we could not supply in Europe. For electronic equipment the most important standard is that for Electromagnetic Compatibility, or EMC. This standard has been devised to ensure that electronic equipment will not interfere with other equipment and is itself reasonably immune to interference. Meeting this standard involves extensive testing of the equipment under controlled conditions. It gives some assurance that the instrument will not be affected by other equipment nearby.

Balance
Obtaining certification increases the cost of any product development process. With a new product the design and development costs probably double to achieve ATEX, UL and CSA. Achieving certification also increases the cost of the product. Both of these are inevitably reflected in higher prices. However, safety does not come cheaply and using certified equipment ensures product that is safe and reliable. Overall the trend is for increasing demands for standards and compliance. There is no going back.

Abbreviations
ATEX – Explosive Atmospheres (from the French; ATmosphere EXplosibles)
UL – Underwriters' Laboratories (of the USA)
CSA – Canadian Standards Association
IEC – International Electrotechnical Commission
IECEx Scheme - International Electrotechnical Commission Scheme for Certification to Standards Relating to Equipment for use in Explosive Atmospheres

---

AUTHOR DETAILS

Roger Riley, Product Introduction Director, Geotechnical Instruments UK Ltd, Leamington Spa, UK.
Tel: +44 (0)1926 338111
www.geotech.co.uk

Next Stage In Ultrasonic Gas Leak Detection

Gassonic A/S (Denmark) is launching a new EEx-i ultrasonic gas leak detector for fixed installations in the petrochemical industry. The new detector is based on more than 10 years experience with developing and manufacturing ultrasonic gas leak detectors and an installed base of more than 2.500 detectors worldwide.

The Gassonic Surveyor is a cost-effective and low maintenance product. It is based on robust and proven stainless steel microphone technology to ensure instant gas leak detection in extreme environmental conditions. Like the rest of the Gassonic detector family, the Gassonic Surveyor has wide detection coverage of up to 20 meters in radius. Among its features, the detector has visual LED indication of detector status, wide dynamic range (44-104 dB), and standard 4-20 mA analogue output. The detector is easily tested and calibrated onsite with the Gassonic 1701 portable test and calibration unit. The Gassonic Surveyor is also retrofittable with existing Gassonic MM0100 installations.

The Gassonic Surveyor can be used for all pressurized gas installations such as LNG/gas plants, compressor stations, and gas storage facilities. It is certified for use in EEX hazardous environments.

Reader Reply Card no—238

New Gas Sensing Transmitters
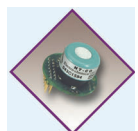
Nemoto Environmental Technology (Italy) has introduced a range of low-cost transmitter products for use by Gas Detection and Analysis equipment manufacturers worldwide. Complementing Nemoto's range of industrial standard gas sensors for Combustible gas, Carbon Monoxide, Hydrogen Sulphide or Ammonia, the CYBER transmitter pcb facilitates both analog (4-20mA or 0.8-4V) and digital (RS485, Modbus) communication with control units, greatly simplifying the use of gas sensors in remote monitoring applications. The CYBER unit is supplied precalibrated and complete with sensor, and may also be supplied fitted within a head enclosure for use as a complete field device for use in, for example, underground car park monitoring systems.

—Reader Reply Card no—239

Advertisement: SENSITRON – GAS EVOLUTION. SAFETY AND SECURITY FOR A BETTER LIFE.

THE WORLD-TECH SOLUTION IN FIXED GAS DETECTION

GALILEO MULTISYSTEM

FUNCTIONAL SAFETY PC CONTROL PANELS
By SENSITRON SIL SYSTEM

THE WORLD-TECH SOLUTION IN FIXED GAS DETECTION
SMART & CYBER INTELLIGENT GAS TRANSMITTERS
ONE MAN CALIBRATION WITH
SENSITRON ATEX PERFORMANCE CERTIFIED

SMART 3C D – EEx d & EEx n IrDA &/or HALL EFFECT MAGNETS NON INTRUSIVE CALIBRATION
SMART 3C IrDA – EEx d IrDA INTERFACE REMOTE CALIBRATION
REMOTE CONTROLLER – EEx ia IrDA TRANSMISSION KEYPAD FOR NON INTRUSIVE CALIBRATION
CYBER 3 – ANALOGUE/DIGITAL DETECTOR WITH ALL SMART ELECTRONICS INCLUDED IN THE HEAD
SMART 3C – EEx d & EEx n RS 485 INTERFACE AND ONE MAN FIELD CALIBRATION

CESI 01 ATEX 053 – Safety Electrical Requirements (EN 50014-18)
CESI 03 ATEX 339 – Safety Electrical Requirements (EN 50014-21)
CESI 02 ATEX 084 – Performance Requirements (EN 61779-1 & 4)

CESI 01 ATEX 086Q – Production Quality Assurance
CHINA - CNACL CEC N° CE031057
CHINA - CNACL CEC N° CE031058U
CHINA - CPA CBTS N° 03025
CHINA - CPA CBTS N° 03024
OTHER APPROVALS PENDING

ISO 9001 CERTIFIED
RINA MARINE
ATEX NOTIFIED

A YOUNG COMPANY WITH GREAT IDEAS
SENSITRON s.r.l. 20010 CORNAREDO (MI) - VIALE DELLA REPUBBLICA, 48
TEL. ++39 02.93548155 - FAX ++39 02.93548089
http://www.sensitron.it - e-mail: sales@sensitron.it
SENSITRON s.r.l. BEIJING REPRESENTATIVE OFFICE
邮箱：z.jingdan@sensitron.it   网址：www.sensitron.cn

Reader Reply Card no 240