

Instrumentation and advanced control systems

The UK boasts a thriving, multi-billion pound instrumentation and control equipment sector



Companies produce equipment for use in a wide range of fields, including industrial automation, process measurement and control, environmental analysis and monitoring, laboratory work and electronic and electrical test and measurement. The sector is well-established in the UK and plays a key role in all other sectors of UK engineering. It underpins technical capabilities in key industry sectors, including engineering and manufacturing, healthcare, life sciences, automotive, aerospace, security, defence, semiconductors, micro and nanotechnology and scientific research.

The industry also plays a key part in encouraging innovation. In particular, the UK is a world leader in advanced instrumentation, where there are a number of areas evolving rapidly as new material requirements and testing technologies are developed. The sector also includes a strong engineering services division, which comprises technology consultancies and project-based companies that bring a substantial engineering and intellectual resource base to the industry.

Other strengths include the UK's well-developed National Measurement System, the national measurement institutes and the development of Knowledge Transfer Networks in key sectors of the industry.

TECHNICAL STANDARDS

UK companies in the instrumentation and control sector are at the heart of the evolution of technical standards across the globe. They are involved in the preparation of national, European and international standards, which affect product acceptance in world markets and provide the basis of management systems for quality, health and safety and the environment.

INDUSTRIAL AUTOMATION

In the field of industrial automation the sector manufactures and supplies control gear, including low-voltage control gear such as starters, overload relays, soft starts, push buttons, as well as high and low-voltage systems or assemblies such as motor control centres.

Automation products include programmable controllers and associated hardware and software. As well as variable speed drives for improved systems performance, DC converters and AC inverters, the sector also specialises in engineered drive systems and integrated control-drive-motor packages.

This part of the industry includes suppliers of enclosures for electrical and electronic use: these include general-purpose IP-rated enclosures manufactured from mild steel, stainless steel, plastic and aluminium together with mounting accessories and internal fittings. The sector also has expertise in the production of static uninterruptible power supply systems and offers full service and support.

PROCESS MEASUREMENT AND CONTROL

UK companies have developed a full range of process measurement and control equipment and systems. This includes process instrumentation, control and automation equipment as well as safety-related systems.

Companies in the sector also make equipment for the on-line and continuous measurement and recording of process variables such as temperature, pressure and flow.

Manufacturers whose processes involve the use and creation of flammable atmospheres can look to the UK for excellence in equipment and protection systems for use in potentially explosive atmospheres. Products range from ➡



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CASE STUDY: SIRA

Sira, a global instrumentation and measurement solutions company based in Chiselhurst, Kent, solves practical instrumentation and measurement challenges in the biomedical, instrumentation test and calibration, defence and security, environmental, safety and compliance and space markets. The firm's technology base includes smart

optics, sensing, imaging, metrology, systems integration and information handling. Sira offers "smart" products, bespoke solutions and a range of services, including managing innovation, applying enabling technologies, prototyping and manufacturing instrumentation and certifying compliance of equipment and personnel.



The NPL maintains world-class metrology facilities and offers calibration services with the highest available accuracy

barriers to complete control systems. A full range of fluid measurement equipment is also produced in the UK from meters for industrial flow to domestic water meters. The sector is also a world leader in the development and production of sensors and transducers for the purposes of measurement and control. Products range from the simple to "smart" sensors and transducers, including thermocouples, pressure transducers, acoustic, magnetic, gas and other environmental sensors.

ENVIRONMENTAL ANALYSIS AND MONITORING

Customers involved in environmental analysis and monitoring will find a range of specialist equipment manufacturers in the UK. The sector's expertise covers air and water quality monitoring.

LABORATORY TECHNOLOGY

UK companies are involved in the manufacture and supply of a wide range of laboratory technologies, including analytical instruments, laboratory equipment; pathology supplies and diagnostics; chemicals, reagents and kits; consumables and disposables; furniture, fume cupboards and safety cabinets.

ELECTRONIC & ELECTRICAL TEST & MEASUREMENT

In the field of electronic testing and measurement, the UK supplies high-quality test, measurement, recording and logging equipment for electronics and measurement of electrical quantities. There are also calibration and repair services available.

Electrical installation test equipment includes hand-held, portable test instruments for initial verification and subsequent testing of electrical distribution systems and installations. There is also a range of instruments for testing portable appliances and high-voltage detectors.

NATIONAL PHYSICAL LABORATORY

The National Physical Laboratory (NPL) is the UK's national standards laboratory, an internationally respected and independent centre of excellence, research and development and knowledge transfer in measurement and materials science. The NPL maintains world-class metrology facilities and offers calibration services with the highest available accuracy. The centre's latest facility in Teddington has high environmental stability, low vibration and minimal magnetic and electromagnetic fields. This will allow the most advanced standards to be realised, many exploiting effects at the atomic level. ■

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Gambica: www.gambica.org.uk Tel: +44 (0) 20 7642 8080