



Defence in Depth

Ultra Electronics, Nuclear Control Systems specialises in providing defence-in-depth to the nuclear industry.

Safety Systems & Critical Sensors

Ultra's instrumentation & control (I&C) equipment have been protecting reactor islands across the globe since the inception of the nuclear industry.

Enabling Long-Term Operation

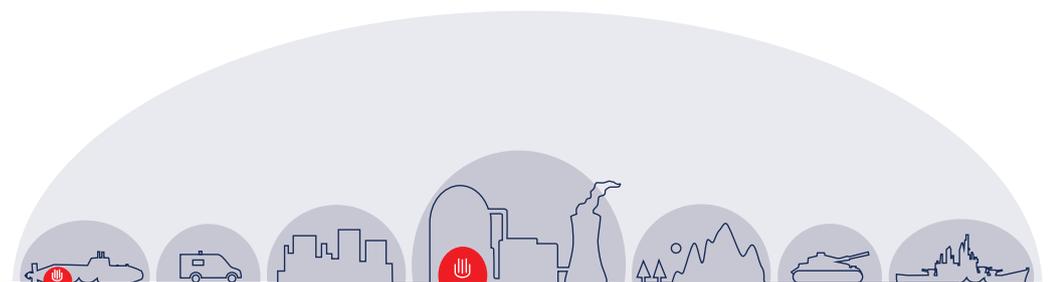
Ultra continually monitor and assess the status of operating plants and implement multiple strategies to extend their operational life for a further 20+ years.

Radiation Monitoring

Ultra's highly reliable detection technology provides continuous monitoring of reactor cores, plant and personnel in key nuclear facilities, military platforms and monitoring of the environment across national and international boundaries.

Emergency Monitoring & Management

Ultra provides training, infrastructure, software management systems and planning experience to enable first responders, governments and international bodies to mitigate significant incidents.



making a difference

Ultra
ELECTRONICS



Safety Systems

Ultra Electronics has class-leading exceptional expertise in the development and integration of safety-critical solutions to the commercial and military nuclear markets.

Ultra takes a different approach to the specification and supply of nuclear safety systems. We take the time to listen and to understand the customer's need, constraints and concerns. As a result we develop system requirements which accurately reflect the customer's needs.

We are able to provide timely, cost-effective and tailored solutions to meet those needs using:

- 40+ years of knowhow in delivering high integrity safety systems (analogue, digital and software)
- In-depth knowledge and practical application of nuclear standards and guidelines
- Experience in working in the most demanding of regulatory environments

Ultra routinely develops multiple solution options, each of which are discussed with the customer in order to find the best

solution for their problem. The options are typically assessed using a range of analyses, for example:

- Architecture analysis
- Trade studies
- Safety analysis
- Cost benefit and value engineering
- ALARP principles

Solutions provided to our customers range from the selection and integration of 3rd party Commercial-Off-The-Shelf (COTS) equipment through to one-off, application specific designs.

Ultra have developed innovative design and manufacturing techniques to manage the threat of obsolescence and the long operational lifetimes within the nuclear industry.

- Pioneering the use of **FPGA** technology within the nuclear industry as a cyber-secure, "logic engine" for reactor safety systems
- Development of analogue and digital circuitry in **thick film hybrids** to achieve high reliability & provide obsolescence proofing. The use of hybrid technology removes the threat of tin whiskers

Independent Nuclear Safety Assessment (INSA)

A key requirement of nuclear regulators throughout the world is that safety systems are assessed by a competent body, independent of the supplying organisation.

Ultra has an experienced nuclear safety team that is able to offer INSA services to the nuclear industry.

Ultra's Independent Safety Assessors operate in accordance with the IET Code of Practice for Independent Safety Assessors.



Critical Sensors

Ultra is at the forefront in the development and manufacture of sensors for critical measurements within the nuclear power plant.

Our nuclear qualified products are recognised for their quality, reliability, accuracy and longevity of performance in even the most severe of environments.

Ultra continue to invest in research, manufacturing and infrastructure to ensure we remain one of the world's leading suppliers to the nuclear industry.





Long-Term Operation

Our customers know that their nuclear plants have ageing and obsolescence issues, they look to Ultra for solutions.

We provide a complete range of services to review, sustain and extend the Instrumentation and Control (I&C) Systems of a nuclear plant.

We enable our customers to:

- Implement a strategy that has nuclear and conventional plant safety considerations at its core
- Articulate and quantify the risks arising from I&C obsolescence as part of a continuous management process
- Implement a strategy that is proportionate to the risk and supports the operator's key business drivers
- Optimise a range of approaches that include maintenance, refurbishment and replacement at system and component levels that are implemented consistently across the fleet
- Have sustainable Suitable Qualified Experienced Personnel (SQEP) at all necessary levels within the operation
- Exhibit organisational effectiveness and alignment in implementing the fleet wide I&C obsolescence strategy
- Have long-term strategic partnerships with key suppliers
- Operate robust investment delivery processes
- Benchmark I&C obsolescence strategy with other industries

Radiation Monitoring

Ultra is a leading expert in the field of radiation detection with more than 50 years experience working in the nuclear industry worldwide. Our subject matter experts provide unrivalled capability in radiation sensor design, manufacture, applications knowledge, installation, support and system decommissioning.

Mobile Radiation Detection Standard Products include:

- Installed Vehicle Monitor (ANVS2-FV)
- Installed Naval Monitoring System (ANVS2)
- Deployable Mobile Monitor (RM3) – The Cone

Services include:

- Bespoke system design
- Product and Maintenance Training
- Radiation and Application Training



Leading experts in nuclear emergency management worldwide

Emergency Monitoring & Management

With over 30 years of experience in supporting nuclear emergencies, Ultra is a leading expert in the field of Emergency Monitoring and Incident Management. Our specialist systems and dedicated support team provide unrivalled capability in system design, applications knowledge, sensor technology, emergency software, network and infrastructure and long-term service support of a wide range of radiation incident management networks.

Ultra's emergency monitoring and management systems primarily focus on monitoring in a nuclear or radiological emergency however the technology and support capability has been adapted for use in a host of emergency applications.

One of the most important aspects of managing a radiation emergency is the ability to promptly and adequately assess the need for protective action both for public and environmental protection.

Continuous radiation monitoring is a key source of information which allows emergency management professionals to



make informed decisions regarding if, when and where protective actions should be applied. Monitoring data:

- helps classify the extent and duration of the hazard
- provides detail on the physical and chemical characteristics of the hazard
- allows decision makers to assess the need for protective actions and interventions
- assists in the prevention of spread of contamination and confirms any remedial measures have been effective

Ultra offers a wide range of sensing technologies to provide accurate, reliable and relevant data in the event of an incident.



making a difference

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