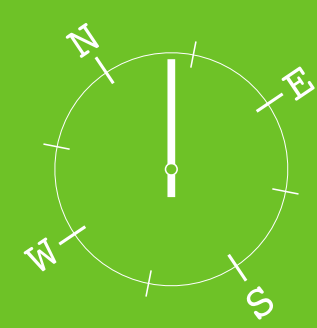


Intelligent Innovative Integration

# LandSpace

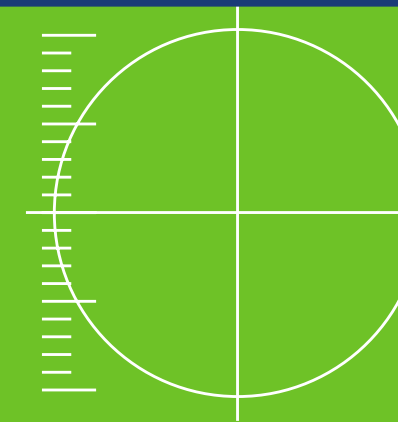


Ultra Electronics is an international group of businesses specialising in the design, manufacture and support of electronic, electromechanical and software systems for the defence, security and aerospace markets worldwide.

The LandSpace business sector of the Electrics Division designs and manufactures a range of vetronic systems and components for military vehicle applications. Vehicle systems include crewstation equipment, power management, health and usage monitoring and indirect vision.



A range of configurable crewstation panels with optional databus interfaces that can be integrated to provide a complete vetronics system



Electro-optical systems and components. Video switching and power unit, low light day, image intensified & thermal imaging sensors and LCD crew display unit



## Intelligent Innovative Integration

### Vetronics

Ultra has over 40 years experience in the design and development of fighting vehicle systems and is a recognised centre of excellence within the land systems market for the development and supply of electronic systems and software. A range of microprocessor based electronic modules has been developed that can be packaged to suit a number of vehicle applications. These modules incorporate databus interfaces that comply with the major standards and bus types, including **Controller Area Network (CAN)** and **Time Triggered Protocol (TTP)** for safety critical network applications. Modules have been incorporated within products including control handles, control panels, power management devices and databus gateways.

Ultra designed systems, using common databus modules, have open expandable architectures that provide a growth path to increase system functionality whilst minimising system development costs.

Developments include a low cost scalable **Health and Usage Monitoring System (HUMS)** that can be configured for vehicles ranging from logistics support to main battle tank.

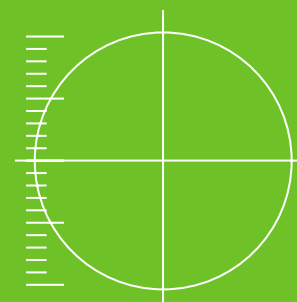


Challenger 2 gunner's & commander's panels and gunner's control handle

### Power management

Customer specific **power distribution and management systems** can be realised using Ultra's proven range of modular power switching nodes and circuits. These utilise the latest silicone smart power switching technology.

New developments include the power distribution system for the British Army Trojan and Titan vehicles. The system consists of a **power distribution panel**, **hull rear junction box**, **commander's services panel**, **bridge control panel** and **driver's control panel** for each of the vehicles. An innovative conductance based battery monitoring system is also available to enable intelligent power management solutions.



Power distribution unit with optional CAN bus interface to provide intelligent power management systems



Modular commander's & gunner's control handles utilising the latest Hall-effect position sensing technology with a range of optional analogue and databus interfaces

### Crewstation equipment

Ultra has a comprehensive range of gunner's, commander's and driver's **control handles** that are in service on military vehicle programmes worldwide. Products include fixed, 2-axis and duplex (two handed) handles as well as steering yokes and gear range selectors.

The latest technologies are being incorporated into control handle designs to increase reliability, reduce costs and enable interfacing to databus based systems. Developments include non-contact Hall-effect position sensing, CAN bus interfaces and Time Triggered Protocol (TTP) interfaces for safety critical applications.

Fighting vehicle **control panels** are developed to meet customer specific requirements with particular focus on user interaction and functionality. Power switching and databus interfaces can also be embedded within the control panels to enable integration to distributed bus based vehicle control and power systems.

Ultra has an established expertise in the specification and integration of **crewstation displays** within fighting vehicles. Displays enhance battlespace situational awareness by enabling the crew to select and view images and information from externally mounted sensors, battle management computers and vehicle systems.

Ultra's **drivers information system** displays critical engine and system information from a vehicle powerpack.

### Electro-optical systems

Ultra has developed an **Indirect Vision System (IVS)** for fighting vehicle applications. The IVS is a high quality fully integrated surveillance system that provides the vehicle crew with additional situational awareness from under armour in all light and weather conditions.

The IVS consists of low light day, image intensified and thermal imaging sensor units, a 12x12 video switching and power unit and LCD crew display units. The IVS can be installed as a standalone system or integrated into existing vehicle systems.

### Lighting solutions

A wide range of LED lighting solutions has been developed for military vehicle applications. LED technology has significant benefits over conventional filament bulb technology in terms of power consumption, light output and life expectancy.

LED lighting products are designed as 'drop in' replacements for existing in-service filament bulb lighting, having identical connectors and mounting footprints.

### Harnesses and components

Ultra provides both internal and external harness systems for military vehicle power and data applications.



## Our LandSpace product range

### Vetronics

- Controller Area Network (CAN) interfaces
- Time Triggered Protocol (TTP) interfaces
- Databus gateway/bridging nodes
- Health and Usage Monitoring Systems (HUMS)
- Speed sensor unit

### Power management

- Battery management systems
- Power distribution systems
- Power switching nodes

### Crewstation equipment

- Fixed and displacement control handles
- Driver's steering column and yokes
- Gear range selectors
- High fidelity simulation controls
- Cursor control pointing devices
- Crewstation control panels
- Driver's information system
- LCD crew display unit

### Electro-optical systems

- Video switching and processing
- LCD crew display unit
- Thermal imaging sensors
- Image intensified sensors
- Low light day sensors

### Lighting solutions

- Discrete lighting controllers
- LED and EL lighting (NVG)
- Emergency lighting systems
- External vehicle lighting
- Crewstation flood and spot lighting

### Harnesses and components

- Complete electrical harness systems
- Discrete harness components
- Terminal connectors



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