



High Integrity Harnessing

Bespoke harness design solutions

Ultra Precision Air & Land Systems is an Ultra Electronics business specialising in electronic sub-systems designed for use within the Aerospace and Defence industry. Ultra's experience in designing ruggedised and deployable test equipment goes back to the mid-1980s and our product portfolio includes test equipment that is in service on all major UK MoD and many US DoD platforms. Areas of expertise include fuel system, 1553 databus, RF filter and Electrical Wiring Interconnect System (EWIS) integrity testing. Ultra also provides special-to-type test solutions to help our customers tackle the most demanding test requirements worldwide.

Ultra's on-site electrical harness production facility provides a wide range of services to suit the wiring needs of many large aerospace companies worldwide. Ultra's experience of building complex interconnect cables is derived from a background of designing ruggedised electrical sub-systems for military applications. Many of our harnesses are hand assembled, using high grade materials to ensure product reliability in the toughest of environments.

Services range from providing a simple point-to-point power harness, through to full design support for more complex harness systems. Integrated switchboxes can be designed for more complex systems, and multi-layered screening can be used for EMI filtering where required.

Harnessing solutions are provided for a large range of applications, from aircraft fuel system measurement and gauging, MIL-STD-1553 physical layer testing, CANbus, ARINC-429 and Ethernet data buses. In addition, harnesses for digital and analogue video, discrete signal, power and fibre optics can also be provided.

Key capabilities

- Full design support
- Build-to-print
- Digital, analogue, discrete signal, power and fibre optic harnesses solutions
- Complex low loss switchboxes
- Multi-layer screening
- On-site braiding
- Box and panel build
- Knitted braid screening to JSF specifications

Extensive range of applications within many industry sectors

Using high build quality and techniques for increased EMI protection, Ultra's products are ideally suited for interconnecting systems operating in extreme temperate, high vibration, humid and dusty environments typically experienced by the military. However, with increasing pressures on the safety of commercial aircraft, demand for such ruggedised harness solutions for this industry are becoming increasingly popular.

High integrity switch boxes

Some complex systems require changes to the interconnections within the harness system during testing. To enable this, low loss switch boxes can be designed and produced either as an integral part of the harness or as a plug-in adapter module. This will reduce the risk of damage to the aircraft during re-configuration and rapidly reduces test time as it means that the cables are only physically connected once, with the switch box controlling signal routing during testing.

Box and panel build

We can also provide flat plate control panels, enclosed boxes and bespoke interface control units to suit any specification.

Major customers

Ultra is proud to have worked with many of the key OEMs and operators in the industry to date, including:

- UK MOD
- US DOD
- Airbus
- BAE Systems
- Fokker
- KLM
- Raytheon Systems Ltd
- Thales

Quality and standards

- ISO9001/AS9100
- MIL-STD-461
- ATEX Zone 2
- CE/COSHH/ROSH/WEEE
- Low voltage directive
- IPC-620A



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