

High-Density Multiplexer Selected for Aircraft Lightning Protection Testing

Submitted by [Pickering Interfaces](#)

A major UK manufacturer of aircraft engine control units is using a PXI high-density Multiplexer as the switching solution for use in its new automated production test systems. These systems will be used to test FADEC (Full Authority Digital Engine Controller) lightning-strike protection components on Airbus' A330 and A350 as well as Boeing's Dreamliner aircraft.

The customer needed to test the transient-voltage-suppression diodes, or transorbs, used to protect the FADEC's sensitive electronics from very fast voltage spikes induced on connected wires following a lightning strike on the aircraft. Due to the quantity of transorbs that needed to be tested (one on every I/O connection of the FADEC), a large number of high-power multiplexers were required to connect the UUT to the test instrumentation.

The customer required a compact, modular test architecture for scalability and ease of maintenance and selected PXI as their preferred platform. With no high-density PXI multiplexers of the required performance commercially available, the customer approached Pickering (a preferred PXI switch supplier) to discuss their options. Pickering's engineers subsequently [designed, built and tested](#) a new PXI multiplexer to their specification. Following a successful trial of the initial prototype, Pickering worked closely with the customer to simplify the test system wiring by adding a second connector to the multiplexer for the MUX common connections. This led to a preliminary order for 84 multiplexer modules, with additional future requirements planned.

Initial Results

Initial results from the system have been very promising. The customer has found that the new PXI-based system is approximately six times faster than their existing test solution and, more importantly, delivers extremely stable measurements. In addition, the customer has calculated that by splitting the MUX commons on to a separate connector, Pickering has saved them around 10% on the cost of each system by dramatically simplifying the original cabling and interconnection design.

The [40-651 High-Density PXI Multiplexer](#) is a COTS (Commercial-Off-The-Shelf) product and is available worldwide. For specifications and pricing please visit the Pickering web site at pickeringtest.com.