

United Electronic Industries & NASA NEAT

WORKING TOGETHER TO FIND SOLUTIONS

Hybrid and electric vehicles are becoming more prevalent in modern society and NASA Glenn Research Center in Ohio has raised the bar by creating a new and cutting-edge Electric Aircraft Testbed (NEAT). This testbed is designed to enable end-to-end development and testing of a full-scale electric/hybrid aircraft powertrain.



THE IMMEDIATE CHALLENGES

- 1 Leverage a DAQ system that could provide independent system instrumentation and the ability to send ARINC-664 control signals.
- 2 The system needed to be flexible to record a wide range of signals such as communications, power and diagnostics during each test.
- 3 The system needed to enable a master PC to have full supervisory control and fault detection capabilities.

UEI'S PATHWAY TO SUCCESS FOR NEAT

- UEI's wide range of products, ruggedness and flexibility was the perfect fit for this application. By using UEI's PowerDNA® data acquisition and control systems, the entire aircraft could be monitored and controlled.
- The aircraft powertrain communications deployed with PowerDNA systems implemented the ARINC-664 protocol, and all machine drives, utilizing an optical CANbus.
- Full integration of avionics - ARINC-664, CAN, and sensors into UEI's platform made it easy for a SCADA system to monitor and control.
- The PowerDNA system provided dedicated speed and torque commands to handle errors to each motor pair.

In addition, a separate PowerDNA system recorded all data from instrumentation located throughout the aircraft.

END RESULT NEAT WAS SUCCESSFULLY OPERATED WITH A FULL 900 NAUTICAL MILE FLIGHT PROFILE.

- [WIN]** With UEI systems, data was collected that enabled an improvement in the powertrain fault and control systems.
- [WIN]** UEI's products not only acted as data acquisition devices but also allowed for the sending of control signals and the bridging together of several test benches.
- [WIN]** NASA gained critical insight into how they could better enhance their future tests, including insights into improving torque measurements, cogging and more.

ASK US HOW UEI CAN DO THE SAME FOR YOUR COMPANY!

