

## 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!

