RIU Subsystem Adapts 'On-the-Fly' to Fit Different System Profiles

Aitech Defense Systems has released the A175, a rugged, self-contained, EMC/EMI-protected Remote Interface Unit (RIU) I/O expansion subsystem that provides dynamic mission profile reprogramming.

The subsystem uses platform location monitoring built into the on-board FPGA to recognize its physical location within the platform and communicate with the main mission computer, allowing the unit to alter its functionality 'on-the-fly' or at power up.

Doug Patterson, VP, Military and Aerospace Business Sector for Aitech, said, "This remote interface functionality is typical of port and starboard avionics platforms, where it's most desirable to utilize the exact RIU hardware in multiple areas of the platform to minimize platform logistics and R&O (repair and overhaul) costs."

Patterson continued, "The RIU's monitoring of key engine parameters, wing root loading, fuel levels, transmission and drive train vibration loading, APU (Auxiliary Power Unit) loads, weapons pods and other critical functions are generally repeated on the aircraft sides. The unique platform location monitor in the A175 enables only one hardware unit to be used for both port and starboard, lowering overall development and long-term logistics and maintenance costs."

Also classified as a data concentrator unit (DCU), the A175 optimizes SWaP (size, weight and power) with dimensions of only 7" x 7" x 1.3" and a weight of less than 2.5 lbs (the approximate weight of one 6U conduction-cooled VMEbus board), while drawing only 10 W, or about the same as a standard household incandescent nightlight.

Applications that benefit from the A175's durable, compact construction and highly flexible functions include manned and unmanned vehicles such as wheeled, tracked ground units as well as tactical fixed and rotary wing aircraft. In addition, subsurface naval ships as well as above and below deck implementations on naval

surface ships benefit from this reliable MIL-STD subsystem.

A large variety of I/O interfaces and large user-programmable FPGA for the application OFP (Operational Flight Program) makes the A175 useful in highly data centric environments such as a remote interface data concentrator or engine and power train data monitor as well as in vehicle prognostics data collection and condition based maintenance (CBM).

The A175's expansive I/O includes dual platform data channels for connection to the aircraft main bus with either dual GbE channels or one dual redundant MIL-STD-1553B channel. In addition, there are two asynchronous RS232/485 serial ports, eight single ended 12-bit A/D input channels, up to eight ARINC-429 drivers/receivers, two differential 16-bit D/A output channels and four differential channels with an external or internal reference voltage.

The A175 also features a multitude of discrete input and output channels including 24 GND/OPEN input channels and five GND/OPEN output channels.

Other functions include an internal elapsed time data recorder and internal temperature sensor for high integrity, mission critical subsystems. Units have been qualified for manned aircraft use with added gunfire vibration and high shock.

The A175 operates from -40°C to +71°C with natural convection cooling and is powered from a standard 28 VDC input per MIL-STD-740D. In addition to EMI protection, endurance against shock, vibration and acceleration per MIL-STD 810F as well as extreme resistance to altitude, humidity and temperature are ensured by the subsystem's rugged Faraday cage design.

For more information please visit http://www.rugged.com/a175.htm [1]

Posted by Janine E. Mooney, Editor

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