

Company overview



www.nginuity.com

Airborne Interface Adaptors

We have an extensive range of airborne protocol converter modules and avionics interface adaptors which convert data between digital and legacy systems, and aerospace and non-aerospace standards.

These products are offered in a number of product architectures to suit your application, accommodating differing size, cost and certification requirements and are provided with full or partial environmental qualification and documentation to support certification, as required. We also have a number of sensor products including a compact high performance GPS inertial sensor module.

These generic modules, which contain hardware and firmware assemblies entirely of our own design, have been configured and supplied to provide a variety of applications including conversions between the following formats: MIL-STD-1553B bi-directional data converter (Bus Controller), ARINC 429/573/717, ARINC 407 (synchro), Encoded Altitude (Gillham), Discrete Inputs and Outputs, Universal Serial Bus (USB), NMEA, Ethernet, CAN 2.0B, RS-232, RS-422.

In addition, we have also supplied Autopilot Logic Interfaces, Multi-Protocol Airborne Data Processor Module, Frequency Input to Analogue Output conversion (fuel flow), Automated Voice Advisory Devices (AVAD) and 8W, 15W, 100W and 150W Power Supply Modules.

These modules are currently flying on both fixed and rotary wing applications, on the following typical aircraft types: BAE-146, Dassault Falcon 20, Dornier 228, Eurocopter EC135, Eurocopter EC145, Eurocopter AS365-N3 Dauphin, Reims F-406, HS-125, Sikorsky S-92.



ATE Systems utilising PXI, Compact PCI, VXI & VME Architectures

We provide a complete ATE system design, test, integration and maintenance service, utilising the latest COTS architectures.

Typical test systems include, Engine Controllers, Industrial Sensors, Air Data Computers and Flight Recorders. Although COTS cards and adapters address the majority of requirements, we often encounter complex bespoke interfaces or timing critical functions, for which we design custom solutions.

Functions incorporated have included ARINC 429, 561, 568, 573, 575, 717, ARINC 407 (Synchro), MIL-STD-1553B, GPIB, USB, RS232, RS485, RS422, NMEA-0183, Ethernet, I2C, I2S & SPI, CAN (J1939, CANopen, ARINC-825), analogue I/O (16 & 24 bit), +28V discrete I/O (opto-isolated), programmable resistance, resistance simulation (SAT & TAT), analogue and digital I/O bespoke signal conditioning, complex high speed switching applications, atmospheric pressure simulation, high pressure simulation, programmable power supplies, environmental chamber control.



USB Avionics Interface Modules

We manufacture an extensive range of engineering test USB interface modules providing data bus simulation, monitoring and acquisition via a desktop or laptop PC.

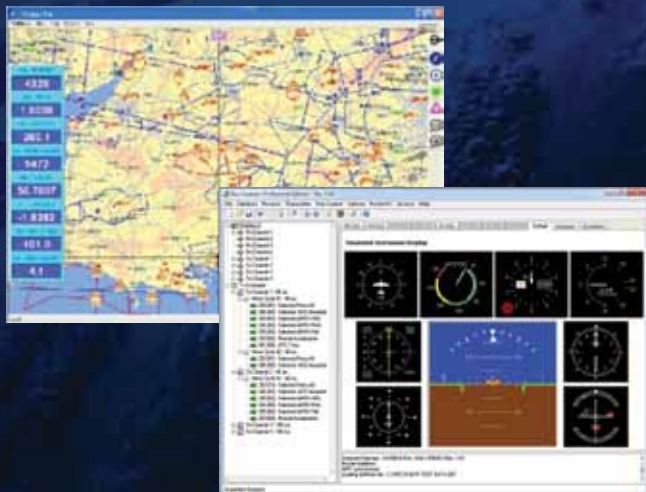
These can be easily used to acquire data during flight tests, as the modules have opto-isolated receiver options and are powered from the PC's USB port. Protocols include ARINC-429/575, ARINC-561/568, ARINC-573/717, ARINC-407 (400Hz synchro), Encoded Altitude (Gillham), discrete, resistance simulation, MODBUS & CAN 2.0B (J1939 and CANOpen). Key features include complex multi-cycle transmitter tables, simultaneous real time full bandwidth acquisition and bus monitor, real time bit error injection & word injection/replacement, programmable bit rate, amplitude and inter word gap, and simulated instrument displays. These modules are provided with our comprehensive Bus Inspector software applications.

We supply modules of this type to companies such as: BAe Systems, Cobham, Eurocopter UK, FR Aviation, Garmin, HM Governments Queen's Flight, Lufthansa, Penny & Giles Aerospace Limited, Raytheon Aircraft Services, Royal Air Force (RAF), Sikorsky Helicopters, Westland Helicopters, Zodiac Aerospace.



Software Products

We have a number of software applications to support our range of Airborne and USB interface products including Bus Inspector, Situational Awareness Display, MetroCal Calibration Software, Generic Flash Loader Utilities, API Libraries available for USB products, MODBUS & J1939 Display Software, Moving Map overlays and ActiveX inserts.



Industrial Products

We design and manufacture a number of industrial products including precision pressure control equipment for an engine pressure calibrator and these incorporate RS-485, Ethernet, IEEE-488 and USB 2.0 interfaces. We have recently introduced a precision digital pressure module to our product range featuring excellent accuracy and stability, full scale pressure ranges from 130kPa (1.3bar) to 5MPa (50bar), USB and Ethernet interfaces, API Library, data logging capability, colour high-resolution touch screen display and a ruggedised enclosure.



About Nginuity

Nginuity design and manufacture interface modules for use by avionics manufacturers, installers, completion centres and operators for airborne data conversion, acquisition, and the test and verification of aircraft avionics.

Nginuity Limited is a privately owned UK company who specialise in the design and manufacture of airborne and ground test interface modules for use within the avionics industry. Our Directors and key staff have each spent more than 20 years working in the aerospace industry, involved in all aspects of product specification, design, qualification, certification, manufacture, customer integration, flight test and quality assurance.

Design Capability

We have an extensive range of airborne protocol converters and avionics interface adapters which convert data between digital and legacy systems, and aerospace and non-aerospace interface formats.

The modular design philosophy of our interface adapters enables us to quickly reconfigure or modify existing designs to create customer specific variants which are available to suit short lead times, and can be manufactured in small quantities.

Our design capabilities include electronics, software (embedded and PC) and mechanical.

We utilise several processor and programmable logic (FPGA and CPLD) architectures depending upon the application and designs. We utilise industry standard chipsets and line drivers to provide high reliability, high integrity and robust interfaces and we also provide opto-isolated receivers when connection is made to a primary aircraft bus to ensure the integrity of the aircraft system.

Our mechanical housing designs incorporate features appropriate to the application such as electromagnetic gaskets, conductive conversion coatings and bonding faces, where necessary.

Manufacturing Capability

We manufacture our own designs in house and are also approved for "Build to Print" manufacture for several aerospace companies.

We provide services in the following disciplines : conventional through hole PCB assembly, bespoke SMT assemblies and modifications, mechanical assembly, wiring and looming (including prototyping), set up and calibration of assemblies, and repair and overhaul.

Our processes and controls are designed primarily around the aerospace industry, having full batch traceability and stock control.

Qualification & Certification

We typically perform environmental qualification to DO-160D/E/F/G, software qualification in accordance with the requirements of DO-178B Level D, hardware qualification in accordance with the requirements of DO-254 Level D, but qualifications to other standards and levels can also be provided.

We prepare certification packs for environmental, hardware and software designs to support our customers' design certification applications.

Installation & Integration

Following product delivery, we are able to provide consultancy and engineering support to assist in the aircraft installation & integration process, including flight test data acquisition services if required.

Our Engineers have been security cleared and hold valid helicopter underwater egress certificates.

Quality Policy

We operate a Quality Management System in accordance with the requirements of ISO 9001, and are currently working towards a formal approval. A copy of our QA Manual is available upon request.

We purchase all materials and components from our approved list of ISO9001 vendors. We conduct vendor assessments to ensure the highest levels of quality and traceability are maintained. All our products are serialised and fully batch traceable.

If required, a Certificate of Conformity can be supplied. We can also provide a First Article Inspection Report at the first time of manufacture.

We operate an annual calibration system for all of our test equipment and tooling and all measurements are traceable to National standards.

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