Avionics

NEW – SENSOR INTERFACE UNIT (BASIC VERSION P/N 2006914V01, SMART VERSION P/N 2011681V01)

The N-SIU is a small Mission Management Computer that consists of HW and Resident SW that implement a real-time run-time environment to perform the I/O functions.

The NSIU manages errors at the HW level giving communication to the external world.

- Certified on Civil Rotary Wing platform – EASA Form 1
- Designed in accordance with DO254/DO178B level B compliances
- Application independent easy fitment to different aircraft
- Open System Architecture
- Expectation of life greater than 20 years without major redesign

0NSIU is intended to be used as extension of N-AMMC capability connected with Arinc-429 or as single Airborne Computer in a Smart version (based on AMCC PowerPC 460EX@1Ghz). N-SIU acquires, conditions and processes information coming from helicopter sensors.

Cross-strapped sensors are allowed. In addition N-SIU manages commands and excitations to remote devices.

N-SIU Software (smart version)
N-SIU application software managing sensors and equipment data acquisition is based on RTOS Integrity-178B by GHS. Application SW is "Field Loadable" by means of a dedicated I/F using Arinc 615 protocol.

NSIU Graphic Configurable SW Application Tool
Graphic Configurable SW application tool to allow an easy reconfiguration to different a/c version to satisfy new customer requirements.

The tool manages the complexity of configuration data in order to avoid the introduction of errors and inconsistencies, whilst providing the ability for rapid reconfiguration. It simulates the timing behaviour of a new configuration to optimise CPU workload for maximum performance from the system (granting the safety requirements for parameterized Data uploading imposed by DO-178).

N-SIU

TECHNICAL FEATURES

	BASIC VERSION	SMART VERSION
Size (H x W x D)	41.5mm x 183mm x 273mm	41.5mm x 183mm x 273mm
Weight	1.55Kg	2.05Kg
Power requirements	+28VDC MIL-STD-704F	+28VDC MIL-STD-704F
Power consumption	15W @ 25°C	35W @ 25°C
MTBF	11,000 operating hours	10,000 operating hours
Cooling	Convection cooled	Convection cooled
Connectors	3x MIL-STD-38999	3x MIL-STD-38999
Processing module	n/a	APM460 Open VPX
Processing	MPC565	MPC565 and AMCC Processor PPC460 @1GHz
RTOS	n/a	Greenhills Integrity DO178 B
Software factory	n/a	ADA, C
Resident SW	In accordance with DO178B level B	In accordance with DO178B level B
Loader	Proprietary	Arinc 615

ENVIRONMENTAL (RTCA DO160G/MIL-STD-810G/MIL-STD-704F)

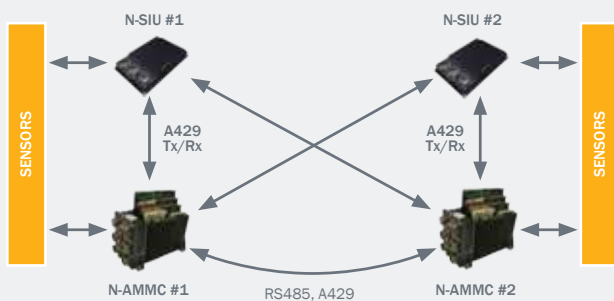|	
Operating temperature (ambient)	-40°C to +70°C
Non-operating temperature (ambient)	-55°C to +85°C
EMC	In accordance with MILSTD-810G, RTCA/DO160G and DEF STAND 59-41

INPUT SIGNALS

Discrete (28/OPEN, GND/OPEN)	70
Discrete (0/5 V TTL)	8
Magnetic pick up	1
Voltage (high/low level)	2
Temperature sensor (RTD)	2
Temperature sensor (thermocouple)	2
Pressure sensor (strain gauge)	2
AC voltage monitoring (high/low)	6
DC current	2

OUTPUT INTERFACES

Discrete HIGH CURRENT (28/OPEN)	3
Discrete HIGH CURRENT (GND/OPEN)	3

STANDARD INTERFACE

CAN Bus	2
RS422@115Kbaud	2
A429 Tx, A429 Rx	6
Arinc 664 (End System AFDXTM)	2
IEEE 802.3 Ethernet @ 1Gb	2

N-SIU OPERATION

SW WR Protection
Watchdog facility
N-SIU address configuration signals
Arinc and CANBUS configuration signals
JTAG

Example Configuration (Basic)

N-SIU #1 — N-SIU #2
SENSORS
A429 Tx/Rx — A429 Tx/Rx
N-AMMC #1 — RS485, A429 — N-AMMC #2
SENSORS

Example Configuration (Smart)

N-SIU #..n
N-SIU #1 — N-SIU #2
SENSORS
A664 Switch
N-AMMC #1 — RS485, A429 — N-AMMC #2
SENSORS

LEONARDO
AIRBORNE & SPACE SYSTEMS