AMMC-L

Avionics

AIRCRAFT MONITORING MANAGEMENT COMPUTER - LIGHT

The AMMC-L is a computer part of the VMS (Vehicle Management System) computer family, that provide HUMS capability for Helicopters plants in order to extend the functionalities provided to the Avionic Platform from the N-AMMC (FMS, Data Control and Equipment Management, Display Management for EICAS and NAV information and Digital Map, …).

The AMMC-L is intended to be used as extension of N-AMMC capability or as single/stand-alone Airborne Computer that act as a Smart HUMS (based on AMCC PowerPC 460EX@1Ghz)

The AMMC-L consists of HW and Resident SW that implement a real-time run-time environment to perform the HUMS functions. The AMMC-L manages errors at the HW level giving communication of them to the external world.

- Designed in accordance with DO254/DO178B level B compliances
- Application independent. Easy adaptation to different a/c
- Open System Architecture
- Expectation of life greater than 20 years without major redesign
- Low weight and dimension

The purpose of the HUMS is to support the following capabilities on Helicopter platforms:

- Helicopter plants Health and Usage monitoring:
  - Vibration signal acquisition and processing for Transmission Monitoring
  - Structural signal acquisition and processing for Vibration monitoring
  - Rotor Vibration monitoring
  - Main Rotor Track monitoring
  - Structural Usage monitoring
- Helicopter Data Upload/Download port for:
  - HUMS Data
  - Maintenance Data

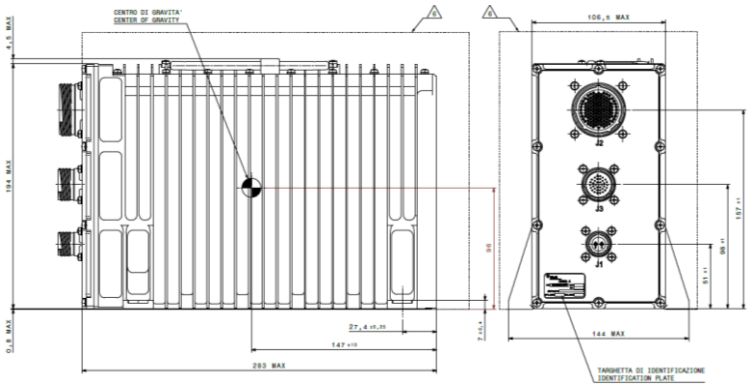
AMMC-L acquires, conditions and processes information coming from helicopter sensors. Cross-strapped sensors are allowed.

AMMC-L Equipment Software (EQSW)

AMMC-L EQSW provides suitable interface to application SW as to manage sensors and equipment data acquisition. AMMC-L EQSW, derived from N-AMMC, is based on RTOS Integrity-178B by GHS.

AMMC-L TECHNICAL FEATURES

AMMC-L physical specification	
Size	Height : 195 mm Width : 107 mm Depth : 283 mm
Weight	4.9 Kg
Power Requirements	+28VDC MIL-STD-704F
Power Consumption	45 W @ 25°C typ 56W @ 25°C (including supply of all external accelerometers)
MTBF	4000 operating hours
Cooling	Convention cooled
Connectors	n° 3 MIL-STD-38999
Processing and Input/Output	
Processing Module	APM460 Open VPX
Processing	AMCC Processor PPC460 @1 GHz
Architecture	Modular Open System Architecture according to VITA 46 (VPX)
System bus	System bus implemented using High speed Serial bus (PCIe)
RTOS	GHS Integrity DO178 B
Software Factory	ADA, C
Resident SW	In accordance with DO178B level B
Loader	Arinc 615 (optional)
I/O interfaces	#24 Accelerometers type I-5A #8 Accelerometers type I-5B #2 Accelerometers type I-5C # 4 Discrete signals I-1A (OPEN/GND) # 4 Discrete signals I-1C (OPEN/28V) # 2 Arinc 429 Time Framed TX/RX # 1 Arinc 429 Non Time Framed TX/RX #1 AOBT RX (RS485) serial I/F Magnetic Pulse: • #2 one-per-rev I-2P input • #2 Azimuth input • #1 O-2P output #1 Ethernet line
Environmental features	
Environmental temperature	-40◦C to +70◦C (operating)
Environmental characteristics	In accordance with RTCA/ D0-160G
Vibration (random)	0.0452 g^2/Hz (lh/axis) Functional 0.0125 g^2/Hz (lh/axis) Endurance
EMC	In accordance with RTCA/ D0-160G
Applicable standards	
MIL-STD-810G / RTCA DO160G MIl-STD-704F	ARINC-429
EIA-STD-RS485	IEEE802.3 Ethernet@100Mb/s
RTCA DO-178B level B	RTCA DO-254 level B



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