

UAV Flight Mission Computer

FMC-2000

Tellumat



Tellumat's FMC-2000 Flight Mission Computer (FMC) is an autopilot system developed for tactical and Medium Altitude Long Endurance (MALE) class unmanned aircraft. It integrates an advanced computing system into a single high-performance computer.

The FMC-2000 forms the central hub for all the avionics data, data-link communications, flight surface controls, navigation data, payload control and voice-link control. It conveniently processes and controls all the incoming information, attaching the devices via the numerous data buses.

The FMC consists of a mission computer, flight computer and an Inertial Navigation System (INS), providing high precision flight stabilisation for fixed wing UAVs allowing full Automatic Take-off and Landing (ATOL). By utilising GPS and INS, very accurate navigation performance is achieved.

The FMC-2000 provides for take-off and landing control via the data link in order to reduce mass (no RC hardware is required). If a secondary (redundant) back-up data link is utilised, the FMC will auto-negotiate the best link to use, thus enhancing the take-off and landing safety.

The FMC-2000 allows fully autonomous flight via waypoints or set points and assists with UAV recoverability with the return-to-base flight mode and the failure management system.

FEATURES

Integrated Mission Computer / Autopilot / INS
SWaP: 220 x 125 x 80 mm, 1.3kg, 25W
Return to base mode, failure management capabilities

BENEFITS

Small size, weight & power allows redundant installation
Rugged Mil-Spec environmental specification
Highly cost-effective

HARDWARE	SOFTWARE
COTS hardware (PC/104-Plus form factor)	Implemented on QNX RTOS to ensure high precision, real time execution
Atom CPU 1,66 GHz processor	Modular design reduces obsolescence risk
2 GB DDR2-667 SDRAM	Autonomous flight control and waypoint navigation
Data storage capability (16 GB Flash)	Set-Point flight control mode
Eight RS-422 / 485 channels	Return-to-Base flight mode for loss of uplink control
Four CAN 2.0 B channels	Manual flight control mode for take-off and landing
One 10/100/1000BASE-TX Ethernet interface	Glide Flight Control Mode in case of engine failure
Conduction cooled	Intelligent maneuvering
Light weight (1.3 kg)	Flight data logging
	Aircraft health monitoring and enhanced error reporting
	Built-in Test functions
	Adaptable to many UAV types



PRIMARY AVIONICS FUNCTIONS

Inertial Navigation
Waypoint navigation
Avionics system and Data-link communication management
Payload management
Full Automatic Take-off and Landing (ATOL)



TECHNICAL SPECIFICATIONS

Dimensions	220 mm x 125 mm x 80 mm
Mass	1.3 kg
Supply voltage	8-30 Vdc
Maximum Power	25 W
Operating altitude	-1600 ft to 25000 ft
Maximum Airspeed	245 kts
Reliability	>1500 hours MTBF
Cooling	Conduction



ENVIRONMENTAL

Humidity	MIL-E-5400T
Vibration	MIL-STD-810F
Temperature	-40 °C to +70 °C
EMC	MIL-STD-461E

SOFTWARE

Developed to	MIL-STD-490; MIL-STD -498 and RTCA DO-178B
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