



INTEROPERABILITY SYSTEMS INTERNATIONAL



M²IMS

**Maritime Mission
Integration & Management
System**

**Tactical mission system for Integration
and Management of Maritime
Patrol Aircraft sensor, weapon and
communication sub-systems**

M²IMS

Maritime Mission Integration & Management System

M²IMS is a tactical mission system for Maritime Patrol Aircrafts (MPA) built with state-of-the-art technologies and a modular design that enables it to interface with a large variety of sensors, and provides enhanced situational awareness through the integration of sensor functionality and effective mission management capabilities.



M²IMS is designed for an extensive range of platforms (long-range MPA to surveillance planes) and supports Maritime Surveillance, Antisubmarine Warfare (ASW), Anti-surface Warfare (ASuW), Coast Guard missions, Border control, and surveillance of Exclusive Economic Zones, Search and Rescue, Fishery Control, Anti-Smuggling Patrol and others.

Information from available sensors and sub-systems (correlation, triangulation) is intergrated to create the Common Operational Picture (COP). This information is available to the Tactical Coordinator (TACCO), Mission Commander (MC), other Mission System Operators and the Pilot (via the Pilot Display Unit), assisting them in their operational surveillance, identification and command and control tasks.



The **M²IMS** comprises of a number of features, such as:

- Co-ordinated situation overview with the inclusion of AIS and ADS-B data
- Advanced GIS functionality and user interface
- Exchange of mission data via Data Links and Satellite
- Decision support tools for vessel identification/classification and Anomaly detection.

Integration

M²IMS brings together a variety of sensors complemented by the Mission Management and Data Processing software to support the operators in all their surveillance tasks and achieve operational effectiveness and efficiency

Cost Effectiveness

M²IMS' modular, sensor-agnostic architecture, allows easy integration of new equipment and functionality. Coupled with a selection of high-end COTS equipment with low life-cycle cost, renders it a cost-effective solution for the expansion of capabilities as operational needs increase

The **M²IMS** integrates and manages:

- Multiple sensors such as SAR Radar, EO/IR, ESM, EW/ELINT, ASW/ACINT, MAD)
- Weapon Interfaces
- AIS and ADS-B transponders
- Data Links
- Navigation systems

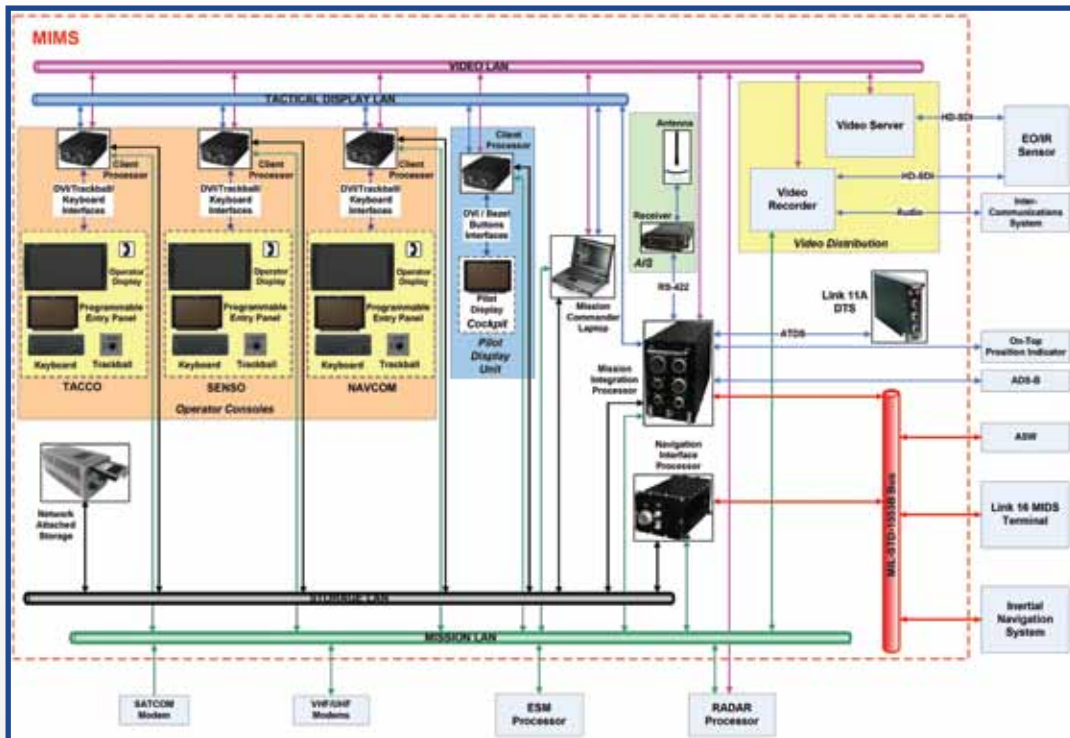
The modular design enables expandability to include functionality for special applications required by the user.

The **M²IMS**-equipped aircraft, is an integral part of a larger surveillance network. Having the ability to interface and exchange tactical information via Data Links (Link 11, Link 16, JREAP, Link22 etc.) with ground Command and Control Centers and other airborne/naval Data Link capable assets. Such exchange is achieved by means of RF links (Satellite or VHF/UHF), thus acting as both an information source and an information node in support of an operation.

In-flight recorded data can be retrieved either during a mission or during ground post-mission debriefing sessions. The system provides all necessary tools to replay, examine and evaluate the Mission, based on the recorded data during the Mission Debriefing Mode.

Customization

M²IMS, due to its modular design can be tailored according to the customer's specific requirements, ranging from the suite of Sensors, Data Links and new functionality for special applications



M²IMS Airborne
segment architecture

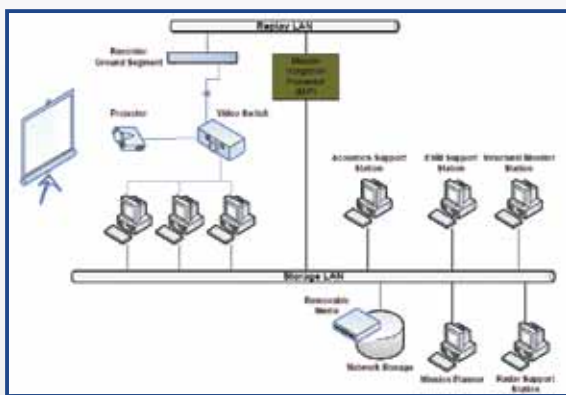
M²IMS

Features

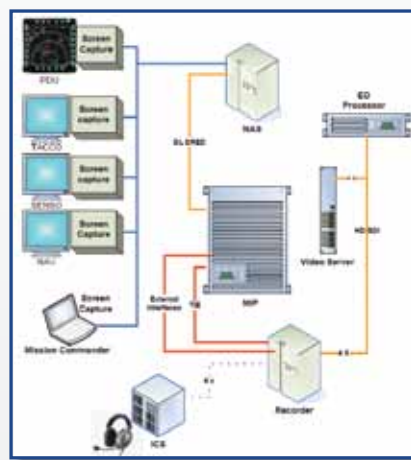
- **Command & Control (C2)**, including threat assessment & warning, identification, classification and intelligence
- **Air and Surface Surveillance**, including track management and correlation, pairings and associations
- **EW Surveillance**, including triangulation, bearing line to track association
- **ASW Surveillance**, that maintains acoustic bearings and ASW tracks, points, lines, areas and sonobuoy data
- **Tactical Situation Display**, including an advanced Graphical User Interface comprising of a moving cartographic display with overlays of mission data (tactical objects such tracks, special points, fixes and bearing lines as reported by the sensors and data links, own aircraft data, Nautical information, Aeronautical information, Waypoints, Flight paths and Search patterns)
 - Display maps support the S-57, Shape, CADRG, DTED, Jeppesen, VPF and GEOTIFF formats
 - Customized symbol sets (e.g. APP-6, STANAG 4420)
 - 3D Visualization capabilities
 - Tactical Areas and Positions – operator defined areas of tactical interest on the cartographic display, including exporting them in a compatible format for the M2IMS Execution mode software suite to load
 - Tactical Aids, to assist operators in performing decision-making tasks, such as Line of Sight functionality, Measurement Vector, Closest Point of Approach, Detection Range/Altitude Circle
 - Pointer Messages
- **Navigation Data Distribution** to aircraft sensors
- **Sensor Control**, allowing the operator to control all on-board systems, including EO, Radar, ESM and Acoustic
- **Weapon Control** (e.g. Missiles, Torpedoes)

Training, Simulation and Technical Support Services

- Technical support for installation and integration on the aircraft
- Training and simulation for operators and maintenance engineers
- Technical documentation and manuals



M²IMS Ground segment Planning Mode



M²IMS Recording Configuration

M²IMS

Features



- **Tactical Network capabilities**, including:
 - US/NATO standard Data Links (Link 11, 16, 22, JREAP etc.)
 - National/Customized Data Links
 - Messaging Capabilities, providing the surface picture as maintained from its Tactical functions to an AdatP-3 message and transmission via a Radio interface
 - File Exchange Capabilities, supporting the exchange of images through V/UHF radio and the transmission of recorded video from the EO sensors to the SatCom modem
- **Pilot Display Unit**, providing the Pilot access to a subset of M2IMS functions, increasing situation awareness and resulting in better coordination with the TACCO and the Mission Commander
- **Multi-function Workstations**, allowing for interchangeability of each workstation's role, supporting reallocation and sharing of crew tasks during the flight
- **Video Distribution Capability**, allowing each Operator access to the EO/IR and Radar video
- **Recording & Playback Capability**, providing recording of EO sensor and Radar video, data reported by on-board sensors, data exchanged over Data Links, the internal system database, four analog audio channels and video screen capture of each operator. Total endurance of the system is for a 10-hour mission
- **Built-in-Test (BIT)**, reporting the status of the M2IMS LRUs and other aircraft sensors
- **Interfaces**, providing functions to interface with the Radar, EO, ESM, IFF, OTPI, Acoustic, AIS and ADS-B, a/c discrete signals
- **Data Storage**, providing permanent storage for configuration data, maps and graphical overlays, recordings, libraries for sensors and executable programs. It is separated in two segments, an airborne and a ground segment. The ground segment operates during the Planning and Debriefing Mode, whereas the airborne during the Execution Mode
- **Mission Debriefing**, based on STANAG 4283, providing facilities for the replay of recorded data. Video captured from Radar, EO sources, Operator Monitors and audio can be replayed in a time-synchronized manner, where the operator has the means of controlling the replay by selecting start, stop, pause, go to specific time
- **Mission Planning**, based on STANAG 4283, providing the preparation of the intelligence database, definition of areas of operational interest, and adjustment of mission specific configuration parameters. Capable of exporting all mission planning data in a mission software compatible format. Saving of data prepared during the Planning mode on removable storage media for loading onto the on-aircraft M2IMS Execution mode configuration
- **Mission Reporting**, providing a set of pre-defined set of reporting templates to be filled-in and ready for delivery upon mission completion
- **Maritime Surveillance decision support**, providing vessel anomaly detection alerts and reports



M²IMS

Maritime Mission
Integration & Management
System



INTEROPERABILITY SYSTEMS INTERNATIONAL

Kritis & 12 Gravias Str., GR 164 51 Argyroupoli
Tel.: +30 210 9647756, Fax: +30 210 9634892, e-mail: info@isihellas.com
www.isihellas.com