PRESS RELEASE

A.ST.I.M. LAUNCHES SEAGUARDIAN® MK4, THE NEW GENERATION OF NAVAL AND COASTAL MISSION SYSTEMS.

Ravenna, 29th May 2018 – Continues unabated the research and development activity of **A.ST.I.M., the Italian company** that for more than ten years has been producing high technology integrated products, systems, services and solutions, able to meet the needs of defense, protection and security of Governments, Institutions and Armed Forces, citizens and communities, in every scenario of intervention: Air, Land, Sea and Cyberspace.

The latest news of the company leaded by Maurizio Minghelli is called **SeaGuardian® MK4** and represents the **new technological generation** of mission systems for naval units and maritime security; thanks to a **radical modification of its system architecture**, it gives a significant **increase of operational capabilities** (due to the greater number of functionalities, sensors and actuators, in addition to manageable and controllable systems) and a major **specialization** compared to the previous versions. In fact, SeaGuardian® MK4 has been completely redesigned and updated in both point: software and hardware perspective.

The new system architecture, in open version, provides operating capabilities in architectures with both distributed and centralized intelligence, and allows a **great flexibility of use** thanks to the COTS-type components eventually navalized. Regarding the network level, the system uses an internal backbone based on an Ethernet LAN (also redundant) and it can use the radio data links as well to share information with other naval units, cooperating aircraft, unmanned structures or remote land command and control centers.

For a software point of view, the new SeaGuardian® MK4 consists of a **framework based on THERMONAV®, A.ST.I.M.'s owned technology,** to which functional modules with specific tasks are interconnected. All software is developed in C ++, except for the GUI (Graphical User Interface) module which becomes in this version completely vectorized and remotable respect to the modules for resource management, data processing and distribution or those to interface to sensors and actuators. The system is based on Linux OS, however the full portability on Windows environment is guaranteed (embedded version) and the possibility to extend it to hard realtime environments is under study. All these architectural evolutions will guarantee a significant resilience of accidental failures or those deriving from the stresses of the operational use, but also more flexibility of use, modularity, scalability, interoperability and reconfiguration capacity.

A clear example of this new performances is the **major number of detection sensors** (surface and underwater), **actuators** (lethal and non-lethal weapon systems) and countermeasures that SeaGuardian® MK4 can handle; in this way this last version can be used in a wide range of missions as well as on board a various range of naval units, conventional and non-conventional structures, and even in remote land command and control centers. The suite of surface surveillance sensors has been significantly expanded, adding to the commercial FLIR systems, also EOSS / EOTS systems equipped with HD payloads for day and night surveillance and laser range finder, illuminator or pointer; in addition of this a specific functional module dedicated to the image processing that means the encryption of images (for recording or sending via radio links, possibly of a civil type), and of the image enhancement and of the algorithms for video tracking and automatic target detection.

Also the **radar** component has been greatly expanded, developing specific functional modules to handle various conventional systems (commercial navigation radar), coherent (Solid State Radar), and FMCW (Frequency Modulation Continuous Wave) and also functional modules for the Asterix protocol's management (in its various categories) in order to significantly increase the overall flexibility, modularity and scalability of the system. The surface surveillance is then completed by functional modules to interpret the transponder data (even aeronautical ones) and the AIS / WAIS data updated compared to the previous versions; while the underwater surveillance capabilities are based on the use of IDS sonar, or other specific sonar equipment for navigation activities.

The **representation of the tactical scenario** is made by means of a proprietary GIS engine, also updated respect to previous versions, able to represent the operational scenario in clear and immediate way on digital cartography. In this regard, the operator can use, at his choice, different types of digital maps depending on the situation, ranging from naval ENC maps to other orthorectified satellites; he can also choose to represent all discovered targets in "data fusion" mode, or filtering them by type and sensor of discovery, he can handle as well a pre-coded and digitized grids and search patterns, involving the onboard autopilot enslavement. The operators can, in this way, view images, tactical and system data choosing the most suitable method of targets engagement, depending on the available resources and on the selected mission profile.

Specific functional modules for weapon systems integration (lethal and non-lethal) and for the countermeasures management gives the possibility to proceed with reaction and defense actions in case of combat or force protection missions. In effect, these missions, as well as those non-combat, are the objective of SeaGuardian® MK4; which is achieved through **7 different mission modules**, specialized and correspondents to the same number of TMS (Tactical Mission System) configurations managed by means of a special module able to quickly reconfigure the system according to operational needs.

In the most complex and military applications, SeaGuardian® MK4 is a candidate to be **a mini CMS** (Combat Management System) ideal for OPV (Offshore Patrol Vessel) and coastal patrol boat, while in the simplest ones (military, civil or dual-use in law-enforcement market) it can be used as a unique and integrated system configuration for navigation and tactical mission management on board patrol boats, combat boats, RHIB or at ground control rooms or offshore installations.

The first SeaGuardian® TMS MK4 systems equipped with the SAR and OSD mission modules (initially developed for **the Italian Coast Guard)** and NSOF (for Sea control and projection forces) have already been tested and purchased by some national customers, to whom they will be delivered in the next months.

For media info:
Alessandra Raccagni - Riccardo Casini
ufficiostampa@integrasolutions.it- Mob. +39.329.1737241

A.ST.I.M. srl operates in the design and development of high-tech systems. Active mainly in the aerospace and defense sectors, its solutions are also appreciated in other areas such as security, strategic infrastructure and naval. The different product lines are now used in helicopters, civil and military naval units and emergency vehicles, as well as in defense of many strategical sites. The feather in company's cap is the THERMONAV® technology from which are derived SeaGuardian®, HiProDOME, Silent Shadow and TALON product line. Always linked to its origins and to the industrial field in which it has developed, A.ST.I.M. srl provides solutions for naval automation with the Sailing Manager brand and, to some leading industrial groups, advanced solutions for industrial automation, robotics and process control, production traceability, integration to management systems enterprise, predictive and proactive maintenance. Maurizio Minghelli, CEO and founding partner of the company, in addition to defining the A.ST.I.M business strategies is also the head of the R&D division, currently engaged in the development of new solutions for Special Forces operations and other new products for markets that, in the future, may be with strategic importance.