

At this year's Euronaval trade show and exhibition, Sagem (Safran) is showcasing its innovative optronics and navigation systems for naval forces, from frontline units to coast guards. Sagem's products on display cover the full range of maritime requirements, including merchant marine security, and are organized in four main areas: observation & engagement, navigation, airborne surveillance and self-defense.

Several new Sagem products will be featured at Euronaval 2014:

Optronic attack mast. A high-performance mast for attack submarines, this optronic unit features multiple sensors in a small package. Sagem's mast offers a non-penetrating design for thick hulls. It incorporates four high-resolution cameras, panoramic surveillance and antennas for electronic warfare, communications and GPS. Its modular design makes it adaptable to both new ships and the modernization of units already in service.

Vigy Engage. Combining surveillance capability and deployment of small caliber arms (up to 30 mm), Vigy Engage includes a gyrostabilized optronic turret and a fire control function. The surveillance version of the Vigy Observer is offered as an early warning and identification system for systems used on merchant vessels to protect them from pirates(*).

Paseo Marine. A multi-mission optronic system, Paseo Marine provides both panoramic surveillance and fire control. It's a very compact system, including a ballistic computer, laser rangefinder and high-resolution cameras, integrated in a gyrostabilized turret. Paseo Marine supports high-precision firing against surface or aerial targets. It can be integrated with a combat system, or operated from a dedicated console, and can also be connected directly to most types of naval artillery.

EOMS NG. New-generation Electro Optical Multifunction System. The EOMS NG provides infrared panoramic tracking and shipborne artillery fire control from a multifunction console in the operations center. Designed for large warships, it offers very high performance. The new version of the EOMS NG now features an autonomous self-defense function for medium-tonnage ships, using a dedicated console.



Euroflir® 410SP. Designed for aircraft and drones, the Euroflir® 410SP system incorporates several types of very-high-resolution optronic sensors in a gyrostabilized turret: infrared imagers and TV cameras, spotter with progressive zoom, pointer and laser illuminator. A pivotal part of any airborne surveillance setup, the Euroflir® 410 SP features new solutions for the operation of sensors and image recognition software. The Euroflir® 410SP was successfully tested on the Patroller tactical drone during the summer of 2014. A new optronic payload will be developed by Optrolead, the Sagem / Thales joint venture.



SIGMA 40 navigation system. Sagem's navigation unit is spotlighting its SIGMA 40 military navigation systems at Euronaval 2014. Featuring laser gyro inertial sensors, the Sigma 40

meets the most demanding performance requirements of different types of warships: aircraft carriers, combat vessels, support and special mission ships. The Sigma 40 XP version, also a very compact design, is specially designed for attack submarines, and has become the global benchmark in submarine navigation systems.

October 27, Sagem (Safran) has won a contract from the Royal Norwegian Navy in competitive bidding for the navigation system on its future ocean support vessel (built by the Korean shipyard DSME under a contract signed in July 2013) and polar research ship, the RV Kronprins Haakon. Both of these ships will be equipped with Sagem's SIGMA 40 laser-gyro navigation system.

SIGMA 20M gyro-compass. Sagem continues to extend its inertial range with this new navigation system, combining a compact design, cost-competitiveness, robustness and maintenance-free operation. The SIGMA 20M offers a breakthrough inertial technology, namely the Hemispherical Resonator Gyro (HRG), patented by Sagem. The SIGMA 20M gyro-compass is intended for demanding naval applications and is fully compliant with military standards. It complements the SIGMA 40 range based on laser-gyro technology, the leader in its market segment.

BlueNaute® attitude and heading reference system. Sagem has developed the BlueNaute® family of attitude and heading reference systems to meet the needs of both commercial ships and government agencies operating at sea (police, customs, coast-guards, support vessels, etc.). In production since the end of 2012, BlueNaute® uses Sagem's patented hemispherical resonator gyro technology. This highly innovative technology offers virtually unlimited lifetime and very high reliability, while also perfectly matching the requirements of the International Maritime Organization and the SOLAS (Safety of Life at Sea) treaty.

More than 400 Sagem optronic system are now deployed by some 30 navies worldwide. Sagem's navigation systems are used on more than 450 surface vessels and 60 submarines in 14 different classes.