



NAJIR MM

Multi-Mission Naval Electro-Optical Fire Control System

- Long range detection
- Gun management
- Ballistic computer





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NAJIR MM Electro-Optical FCS is used in the various missions performed by surface vessels from self-defence operations to ship protection at anchor, from short to long range, against sea or air targets including terrorist threats. It is operational by day and night and will maintain its target detection and fire control performance even in very rough seas and conditions of poor visibility.

NAJIR MM is especially easy to operate and maintain. It is designed to be fully integrated within the Combat Management System or to be operated in a stand-alone mode. It allows manual or automatic sector surveillance, automatic target tracking, aid to identification and transmission or reception of 3D target designation information for engagement. The high performance gyro stabilised platform allows a particularly accurate line of sight.

NAJIR MM is fitted with a ballistic computer allowing high-precision shooting thanks to sophisticated algorithms for calculation of trajectory and ballistics. It is able to

simultaneously control several guns of different calibres. As the equipment is fully passive (except for LRF), the surveillance and the fire control functions can operate with any electromagnetic emission (radar silence).

The Man-Machine Interface (MMI) is usually located in a multi-functional console of the CMS (optional software on request) and/or in a local dedicated console (bridge-located for example). NAJIR MM is the most recent of a comprehensive range of ship-borne fire control equipment, and is directly derived from its predecessors, PANDA, LYNX, NAJIR Mk1, NAJIR Mk2 and NAJIR 2000. They have demonstrated their reliability and performance in electro-optical detection as well as accuracy of weapon control.

Throughout the last 30 years, these systems have been selected by more than 30 navies worldwide. This product line, together with the counter-measure naval equipment NGDS, account for the company leading position in the field of Naval Defence.

Key Features

- COTS sub-components with proven characteristics and reliability (military standards for above-deck equipment and industrial standards for below-deck electronic sub-systems)
- Fully open hardware architecture, modularity and design simplicity allowing:
 - Use of up-to-date components and easy upgrade capabilities according to technological evolutions
 - Easy integration of specific sensors according to the customers' requirements
 - Customisation on request to accommodate a wide range of weapons, sensors and CMS logical and electrical interfaces
 - Easy maintenance and low Life Cycle Cost thanks to separate autonomous sub-components (especially individual naval housing for each sensor: cameras, laser range finder and gyroscope)
 - Result of 30 years of worldwide experience in naval EOD and ballistic computers

Configuration

- Third generation band II thermal camera featuring high resolution and sensitivity
- High-sensitivity CCD camera
- 6 Hz eye-safe laser range finder
- High-performance gyro stabilised light-weight sensor head using brushless direct drive motors
- Up-to-date powerful industrial microcomputer easily upgradeable on request
- Up-to-date multi-mode video tracker: centroid, correlation, combined, edges and multiple target track
- User-friendly automatic or manual control
- Target designation information transmitted to, or received from radar, CMS or other ship sub-systems
- Easy installation of the pre-adjusted sensor head
- Internal and external standard interfaces
- Options:
 - Local or multi-function console embedded MMI
 - Colour TV camera
 - Specific types of weapons and CMS interfaces

Specifications

Line Of Sight accuracy:	1 mrd
Line Of Sight jitter:	< 35 µrd [5Hz - ∞]
Thermal camera:	384 x 288 pixels, cooled IRCCD, Micro scanning NUC, 3.2 – 4.2 µm, 20 mK NETD typical, 2 FOV: 2.5° - 9° (diagonal)
Daylight camera:	765 x 581 pixels CCD, 25 – 200.000 lux, 2 FOV: 2.5° - 9° (diagonal)
Laser range finder:	1.543 nm, 1Hz – 3Hz – 6Hz, Extinction value: > 47 dB, 50m – 40 km, accuracy: ± 5m
Sweep range:	Elevation: - 30° to + 80°, Bearing: N x 360°
Optronic head:	Weight: < 92 kg, Diameter: < 700 mm

Detection Range

Clear weather:		
North Atlantic:	• Patrol Boat:	ΔT = 5°K > 17 km
	• Corvette:	ΔT = 5°K > 20 km
	• Fighter aircraft:	ΔT = 30°K > 16 km
Tropic:	• Patrol Boat:	> 10 km
	• Corvette:	> 15 km
	• Fighter aircraft:	> 13 km

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Phone: + 33 1 58 11 81 00 - Fax: + 33 1 58 11 80 45 - www.sagem-ds.com
 Registered Office: Le Ponant de Paris - 27, rue Leblanc - F-75512 PARIS CEDEX 15 - FRANCE
 Société anonyme au capital de 593.303.000 €
 480 107 911 R.C.S. PARIS