

ELECTRONICS & DEFENSE



EUROFLIR™ 410

Extend your mission, Reveal the unseen



SAFRAN
ELECTRONICS & DEFENSE,
A SAFRAN HIGH-TECH
COMPANY,

holds world or European leadership positions in optronics, avionics, electronics and critical software for both the civil and military markets. Safran Electronics & Defense is the European leader and No. 3 worldwide for inertial navigation systems (INS) used in air, land and naval applications. It is also the world leader in helicopter flight controls and the European leader in optronics and tactical UAV systems. Operating across the globe through the Safran international network, Safran Electronics & Defense and its subsidiaries employ 7,600 people in Europe, Asia-Pacific, North America and South America.

www.safran-electronics-defense.com

EUROFLIR™,
EXTEND YOUR
MISSION,
**REVEAL THE
UNSEEN**

Safran Electronics & Defense is now introducing a new-generation Euroflir™ 410 to meet users' evolving mission requirements, even for the most critical tasks, while also keeping workload manageable.

The Euroflir™ family capitalizes on Safran Electronics & Defense's 35 years of experience in developing high-performance airborne electro-optical (optronic) systems. The combat-proven Euroflir™ 410 is already used on the NATO Helicopter Management Agency's (NAHEMA) NH90 helicopters and the French navy's AS565 Panthers, deployed in today's most demanding theaters.

The new-generation Euroflir™ 410 provides ultra-long-range observation and precision targeting capabilities thanks to high-definition sensors and advanced embedded functions, all in a single LRU.



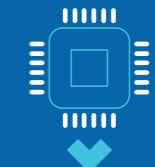
**MULTISPECTRAL &
ULTRA-LONG-RANGE
OBSERVATION, DAY/NIGHT,
ALL WEATHER**

Wide field-of-view and ultra-long-range observation at the same time



ACCURATE TARGETING

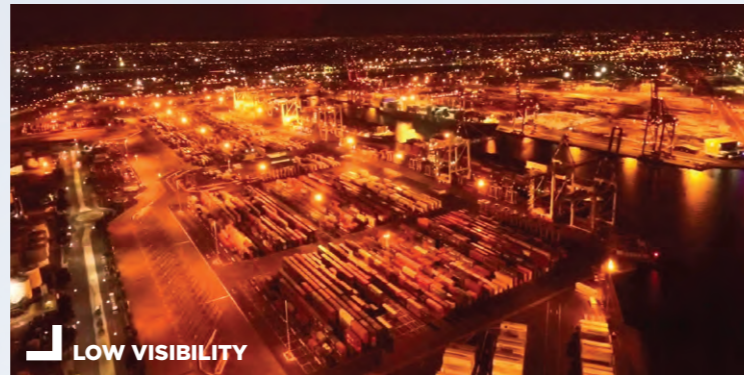
Precise target geolocation & designation thanks to full laser functions and embedded INS



**EMBEDDED DECISION-AID
FUNCTIONS**

Enhanced detection and identification for greater mission effectiveness

MULTISPECTRAL & ULTRA-LONG-RANGE OBSERVATION, DAY/NIGHT, ALL WEATHER



OPERATIONAL ENVIRONMENT

One of the major challenges facing today's military and security forces is the wide range of threats they must address: illegal fishing, pollution, piracy, trafficking of all types, terrorism, etc. Furthermore, they have to carry out these missions day or night, and often in bad weather.

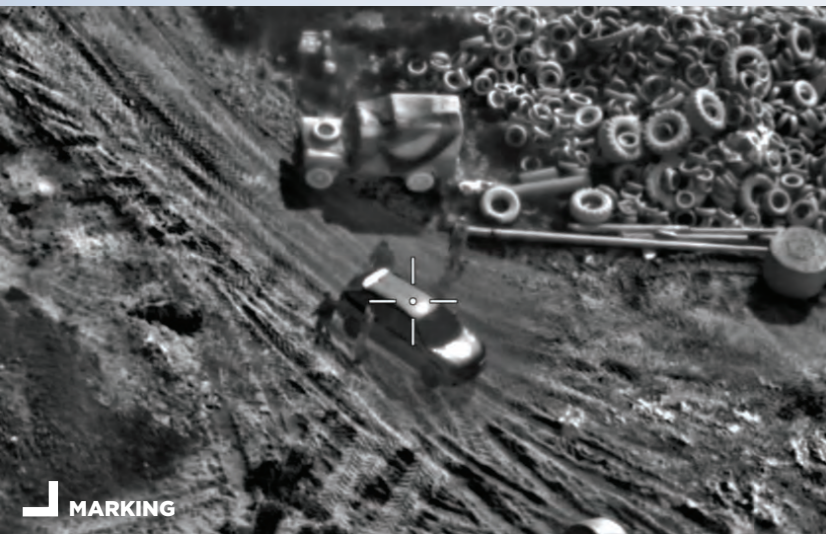


That's why Safran is introducing the latest version of its Euroflir™ 410 ultra-long-range electro-optical system. The new-generation Euroflir™ 410 operates in four spectral wavebands (TV/NIR/SWIR/MWIR), allowing it to function at standoff distance any time day or night, and quickly identify persons in danger, or different kinds of threats.

	IMAGING CAPABILITIES DETECTION & RECOGNITION	IMAGING CAPABILITIES IDENTIFICATION AT STANDOFF RANGE	LASER CAPABILITIES ACTIVE IMAGING
0.4 μm TV 0.7 μm	FULL HD TV CONTINUOUS ZOOM DAYTIME	FULL HD TV SPOTTER DAYTIME	Unmatched daytime identification with ultra-narrow field-of-view TV sensor
0.7 μm NIR 0.95 μm	Daytime global situation awareness with continuous wide-field-of-view TV sensor	FULL HD NIR SPOTTER LOW-VISIBILITY	ILLUMINATOR ACTIVE SCENE ILLUMINATION
0.95 μm SWIR 1.7 μm	Nightfall identification and pointer visualization with ultra-narrow field-of-view NIR sensor	SWIR SPOTTER DVE	Scene perception and target identification at night
3 μm MWIR 5 μm	HD IR CONTINUOUS ZOOM 24/7	HD IR SPOTTER 24/7	Degraded visual environment (DVE) identification and "see-spot" function with SWIR ultra-narrow field-of-view sensor



ACCURATE TARGETING



MISSIONS

Defense and security missions both entail a wide variety of theaters and types of operations: airspace surveillance, high-value site monitoring, maritime surveillance, the fight against drug traffickers, combat support, etc. The systems deployed by these forces have to be especially versatile to rise to the challenge of this mission diversity.



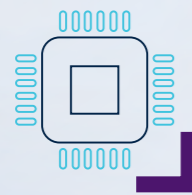
Safran Electronics & Defense therefore offers a variety of different laser functions. And no matter what mission is assigned, target geolocation has become an imperative. For combat missions, laser designation allows armed forces to precisely guide munitions to their target.

The Euroflir™ 410 family of electro-optical systems incorporates up to ten latest-generation digital video and laser sensors. Safran Electronics & Defense offers customers a choice of configurations to address their exact needs, thanks to the modular Euroflir™ system, available in three main versions: **Euroflir™ 410 Surveillance**, **Euroflir™ 410 Marking** and **Euroflir™ 410 Designation**.

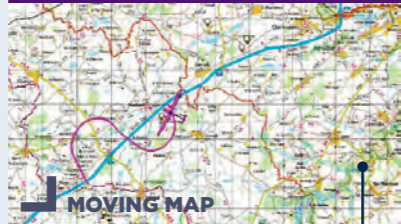
EUROFLIR™ 410 FAMILY	EUROFLIR™ 410 Surveillance	EUROFLIR™ 410 Marking	EUROFLIR™ 410 Designation
TARGETING FEATURES	<p>TARGET GEOLOCATION</p> <p>Eyesafe target range measurement and 3D location-determination</p>	<p>TARGET MARKING</p> <p>Target marking for either crew members or allied ground forces with night vision goggles (NVG)</p>	<p>LONG-RANGE TARGET DESIGNATION</p> <p>Accurate designation with suitable laser coding for laser-guided weapons</p>
IMAGERS	TV (zoom, spotter), NIR (spotter), SWIR (spotter), MWIR (zoom, spotter)		
LASERS	RANGEFINDER, ILLUMINATOR		
	POINTER		DESIGNATOR

ADVANCED EMBEDDED FUNCTIONS

A world first: Safran offers advanced functions fully embedded in the system, enhancing the flight crew's situational awareness, while keeping workload manageable.



IMPROVED SITUATIONAL AWARENESS



MOVING MAP

Visualize the line-of-sight (LOS) and define points of interest on a digital map



AUGMENTED REALITY

Real-time video and points of interest overlaid on a digital map

AUTOMATIC DETECTION



MOVING TARGET INDICATORS (MTI)

Highlight moving objects to help operators detect moving points in the video stream



HOT SPOT DETECTION (HSD)

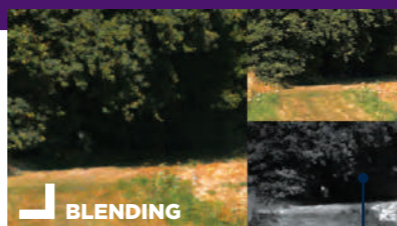
Reveal objects that are invisible to the naked eye by highlighting hot targets in the image background

ENHANCED IDENTIFICATION



ENHANCED RESOLUTION

Improve real-time image quality thanks to a proprietary algorithm that sharply increases detail recognition and identification range



BLENDING

Fusion of different wavebands into a single video stream, giving operators the advantages of each wavelength



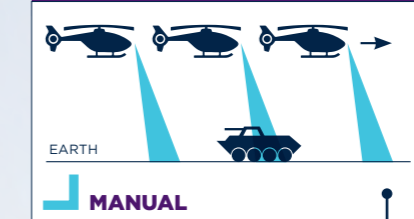
LINE-OF-SIGHT STEERING MODES



Thanks to its embedded INS, the Euroflir™ 410 provides several line-of-sight (LOS) steering modes, described below, which allow LOS control for all situations that arise during missions.

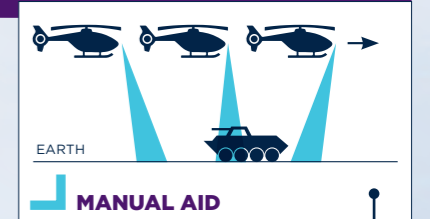
MANUAL MODE

Manual scene scanning with automatic aircraft attitude change compensation



MANUAL

Offset can be adjusted to follow moving objects

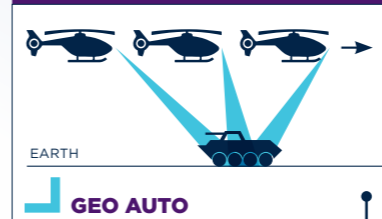


MANUAL AID

Enables locking the LOS on georeferenced points of interests

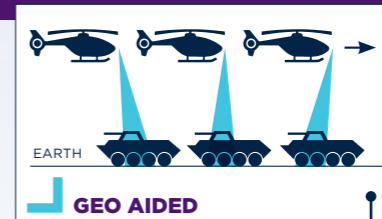
GEO MODE

Focus on scene understanding with automatic scene scrolling compensation thanks to embedded digital terrain elevation data



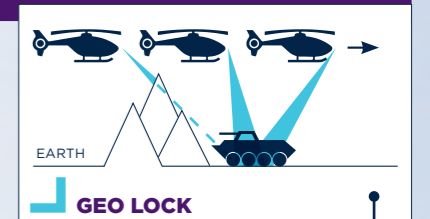
GEO AUTO

In the absence of steering inputs, LOS keeps staring at the same spot on earth's surface



GEO AIDED

An offset can be adjusted to follow moving objects

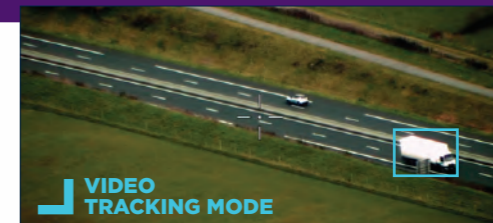


GEO LOCK

Enables locking the LOS on georeferenced points of interests

VIDEO TRACKING

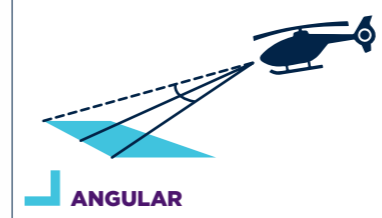
Shapes and Spots tracking



VIDEO TRACKING MODE

PATTERN

Automatic scene scanning assistance for navigation or SAR type missions



ANGULAR



STANDOFF OBSERVATION



SAR SCANNING



FULL LIFECYCLE SUPPORT

One of our top priorities at Safran Electronics & Defense is naturally to reduce total cost of ownership, while maximizing dispatch reliability. We have therefore developed a full range of support services covering the entire Euroflir™ 410 lifecycle. From innovative training solutions to custom-tailored maintenance, we support our customers every step of the way, anywhere in the world.

1 SIMPLIFIED CERTIFICATION & INTEGRATION

To meet these goals, we have developed strategic partnerships with companies from around the world:

- Firms capable of delivering supplemental type certificates (STC) on any platforms for **certification** to EASA Part 21 G.
- EASA Part 145 system integrators capable of integrating electro-optical systems on the platform.

2 TRAINING

Operation: System configuration, sensor selection and optimization, system operation and mission execution.

Maintenance: System servicing tasks including window cleaning, desiccant removal & replacement and turret purging.

Troubleshooting & corrective training: Recognizing system failures, diagnosing system faults, removal & replacement of system line replaceable units (LRU).

3 INNOVATIVE SIMULATOR

Safran Electronics & Defense has developed an innovative simulator that offers infinite simulation scenarios. Advantages include:

- Significant **cost savings** over traditional training.
- **Gradual learning pace**, with clearly identified skills acquisition levels, from beginner to expert.
- **Limited risks**, by creating dedicated missions and rehearsing them before combat.
- Ability to **interface with other simulators** or higher level simulation architectures.



4 WORLDWIDE SUPPORT

Helpdesk and hotline: Immediate access to information and support services.

Local service center: Quick, efficient and reliable support thanks to strategically located Safran Electronics & Defense service centers worldwide.

Field service representative: Experienced and certified technicians available 24/7 for on-site diagnostics and repair work anywhere in the world.



5 MAINTENANCE, REPAIR & OVERHAUL (MRO)

Spare parts, accessories and consumables: ITAR-free spare parts, accessories and consumables available for any system, quickly sent to the customer's location.

Specific test tools: Can supply test tools for customers to perform their own maintenance.

Tailored to user requirements: Custom-tailored services developed to meet specific user requirements for MRO excellence.

6 INTEGRATED LOGISTICS SUPPORT (ILS)

Customer configuration management: Supports the processing and traceability of changes ordered by customers via an online portal, to maintain a maximum number of interchangeable spare parts and subsystems.

Engineering change management: Supports the processing and traceability of engineering changes.

Obsolescence tracking: Continuous active monitoring of parts to stay ahead of the obsolescence curve and to plan ahead for mitigation.

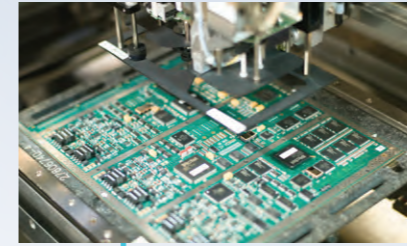
Flight line technical assistance: Secure remote diagnostics and troubleshooting access through Internet or SatLink.



100% IN-HOUSE & ITAR-FREE TECHNOLOGY

Safran Electronics & Defense has full capabilities for the development, production and maintenance of commercial-off-the shelf electro-optical systems.

With over 35 years of experience in this cutting-edge sector, Safran Electronics & Defense has developed expertise in every facet of these products, and continues to invest in state-of-the-art production resources to ensure superior product quality and total customer satisfaction



▼ ELECTRONICS

At Safran Electronics & Defense we have developed our own critical software and make printed circuit boards (PCB) to deliver very-high-performance image processing systems.

▼ OPTICS & MECHANICS

From lens design, polishing and coating, to precision mounting and alignment, Safran Electronics & Defense develops state-of-the-art optical assemblies for airborne imaging or multispectral observation systems.

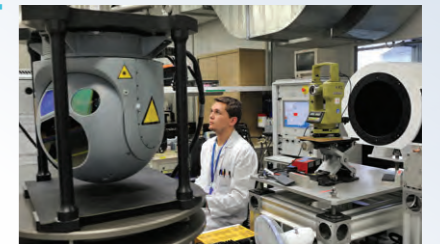


▼ HIGH-DEFINITION DETECTORS

Safran Electronics & Defense provides highly sensitive HD detectors operating in wavebands from visible to far infrared. Our sophisticated detectors are purpose-designed for even the most demanding applications, including operation in extremely harsh environments.

▼ INTEGRATION & TESTS

Safran Electronics & Defense deploys an ISO 9001-certified Quality Management System, based on the aeronautical standards EN9100 and EN9110, to meet customer expectations for quality, cost and deadlines.



POWERED BY TRUST



For further information go to our website
www.safran-group.com

