

Front-line Combat in the Digital Battlefield: Upgrades to the Félin System

Patrick Curlier, Sales & Marketing Manager, Land Systems department, Safran Electronics & Defense

The French army was one of the first in the world to implement an integrated digital concept for its infantry soldiers, within the scope of the army's modernization. Initiated in the early 1990s and supported by NATO, this concept was designed to enhance the warfighter's mobility, communications, protection, observation and attack capabilities. Starting in 2004, the French defense procurement agency DGA (Direction générale de l'armement), part of the Ministry of Defense, began to award contracts for the Félin (*Fantassins à équipements et liaisons intégrés*) integrated equipment suite and JIM LR long-range multifunction infrared binoculars to Safran Electronics & Defense (at the time Sagem). These contracts include the development, production and support of more than 18,000 infantry soldier modernization systems and 2,000 binoculars – now deployed by French regiments for all missions.

Positive feedback

One of the prime beneficiaries of this program is night combat. Optronic systems for both observation and firing make a decisive contribution to the capabilities of dismounted warfighters, as well as providing the reach needed for both day and night engagements. JIM binoculars are highly appreciated by current users for their 360° surveillance capability, as well as target location at night. Weapon scopes enable precision engagement at maximum range. Night vision goggles connected to the system provide both comfort and safety for displacements, along with augmented reality capability. The radio network deployed by Félin-equipped units ensures coordinated and discreet

advances. C2 functions such as BFT (Blue Force Tracking) and navigation are among those most frequently used by platoon leaders. The all-weather protective gear and clothing offers a significant improvement over previous issues, and the new ballistic helmet has become the standard in the French army.

Changing needs and technologies

These operational improvements must address the challenge of evolving needs, threats and technologies. Foreign deployments have shown the increasing imperatives of reduced weight and greater modularity, along with renewed requirement for protection and appropriate information for soldiers, especially during asymmetric conflicts. The fight against terrorism and the army's engagement in homeland security missions mean an ever increasing need for communications and interoperability. Information technologies apt for roaming have made digital an integral part of our daily lives, while paving the way for increasingly collaborative applications. A warfighter's system can no longer be the same, following the smartphone revolution.

Capitalizing on feedback from operations, innovation and new technologies, the equipment in the Félin suite is also changing to adapt to the interfaces required by new army programs. Félin is changing to interface with components in the Scorpion program, including its tactical information system (SICS) and armored vehicles (Griffon, Jaguar, upgraded Leclerc), front-line equipment (the new digital tactical radio) and new weapons, including the MMP medium-range missile, new-generation rocket and AIF (*Arme Individuelle Future*) future individual weapon. ▶

► **Top challenges: lighter weight and modularity**

The weight of dismounted warfighters' equipment has increased over the last decade in response to higher levels of protection, a requirement emphasized during foreign deployments. To meet the need for reduced weight, a new "all-in-one" carrying and protection concept offers a significant load increase, along with optimized ballistic protection and ergonomics.

Safran presented new solutions at the recent Eurosatory 2016 defense show, in particular the new JIM Compact multifunction binoculars. Weighing less than two kilos, these binoculars offer new surveillance, detection and target location functions, along with new services, including advanced connectivity, laser dot visualization (see-spot), identification at low light levels, and improved photo and video recording functions. JIM Compact joins the JIM LR family of multifunction binoculars, already a success in several NATO countries, including the United States, Britain and France.

The Félin system draws on its modular architecture to adapt to different types of missions. For the fastest-moving missions, Félin will offer a more complete range of lightweight configurations. These include an autonomous communications kit, a kit for off-axis firing that includes a scope with head-mounted equipment, and an autonomous operation kit with the SIT COMDE tactical coordination tablet.

An optimized, interoperable communications network

The Félin communications network benefits from the

performance of the new-generation RIF NG radio, which improves communications security while also increasing range versus the initial RIF radio version. It gives soldiers an innovative dynamic relay capability, to improve the service quality of the network, while also increasing range. Furthermore, RIF NG kits can be integrated in the VBCI and VAB Ultima armored vehicles, to ensure continuity between mounted and dismounted combat, and also support the development of new collaborative services. In the medium term, Safran is working on the integration of the planned Contact portable radio at section leader level, and will propose an optimized Félin architecture. For international markets, Safran is drawing on this experience to offer a modular architecture that is agnostic in relation to modern IP radios.

Félin and the Scorpion information system, new weapons, drones and robots

Within the scope of the Scorpion information system (SICS), Safran is developing a new SIT COMDE tactical tablet (Dismounted C2), which integrates dismounted SICS functions in state-of-the-art hardware, along with applications specific to front-line Félin units. All of these services will go hand in hand with the collaborative functions expected at the level of Scorpion joint services tactical groups (GTIA), in line with mounted SICS systems.

Safran is offering an interface kit that communicates with the future infantry weapon (AIF); the kit comprises, as on the Famas rifle, a control grip for the radio and the optronic ►



The new JIM Compact multifunction binoculars of Safran. Photo Safran



The e-Rider robot of Safran

- ▶ sight. For the MMP medium-range missile, Safran provides the manufacturer MBDA with optronic components for the dismounted firing station, and also ensures compatibility with Félin. The vehicle RIF NG kits are reused in the Jaguar and Griffon vehicles being deployed through the Scorpion program.

The French army's upcoming tactical drone, Patroller, will be integrated in the Scorpion program. The drone's ground segment will include portable Remote Video Terminals (RVT), to be deployed by Félin warfighters. This solution had already been developed and produced in fact for the current Sperwer drone system, which will be replaced by the Patroller starting in 2018. At the same time, Safran Electronics & Defense is proposing the e-Rider, a robotized, multi-mission 4WD vehicle. Operating with the integrated warfighter system, this highly configurable vehicle can be

conventionally driven or remotely controlled. But in either case, it offers the intrinsic capability to carry out different missions in partial or total autonomy.

Towards new ergonomic designs

These changes, all concerning dismounted warfighters, assume rapid access to the precise information needed, using appropriate new human-machine interfaces. The cognitive ergonomics of the warfighter's system really comes into its own, and must be aligned with the mental representations of acts by front-line troops. Safran fully intends to be on the cutting edge of these developments, whether by simplifying interfaces, as with the use of a smart watch, or by developing new head-mounted equipment with multimode interfaces capable of augmented reality. ■



New tactical tablet of Safran soldier system. Photo Safran