



FMS200

Your pathway to
smooth flying

Insight paper

Thales FMS 200

Your pathway to smooth flying

Civilian airspace, tactical military mission planning, unpredictable events, Degraded Visual Environment (DVE), multiple sensors, connectivity... The list of elements a helicopter pilot needs to factor in while flying is a long, diverse and complicated one. And today, more than ever, as theatres of operations continue to complexify with faster-paced technological evolutions and a constant stream of incoming data, pilots need to be flexible and agile. This, in turn, requires accurate and agile systems that facilitate precision flying across multiple environments and through diverse degraded conditions.

With a system boasting millions of successful operational flight hours, Thales already supports helicopter pilots worldwide. The Flight Management System 200 (FMS200) has been designed to be flexible and agile, providing warfighters with accurate, what-you-see-is-what-you-fly trajectories through civil and military airspaces. With the FMS200, helicopter pilots can focus on what is happening outside the cockpit, knowing they can rely on a system that will take them through their mission safely, efficiently, and with precision and agility.

Facing complexity

Today's theatres of operations are faster-paced and more complex than ever before. It is not just about the speed of technologies on the ground – e.g., sensors and effectors – but also about the speed at which such technologies change, evolve, and become part of those theatres of operations. To make matters even more complicated, operational environments are also becoming more complex. From various environmental conditions – i.e., DVE – across different theatres, to diverse, multiple and potentially saturating threats, navigating the fog of war can sometimes become challenging.

In such scenarios, the tactical edge will go to those who manage to secure the technologies that facilitate information superiority and enable fast, agile, and flexible flying. Helicopter pilots know that despite all the work that goes into preparing a flight plan ahead of a mission, conditions, environments, and priorities can all change within minutes – or even seconds – and they need to adapt swiftly.

However, most legacy flight management systems were not designed to deal with such complexity and pace. Helicopter pilots had to address any changes to the mission requirements, context, or environment manually and mentally. Additionally, and just as importantly, flight routes and tactical mission planning were two different functions that pilots had to address separately, thus adding to their cognitive load.

Transition seamlessly between civil and military

Theatres of operations are generally removed from civilian airspaces and associated flight restrictions. A flight management system can first alleviate a helicopter pilot's cognitive load by facilitating navigation across civil and military airspaces. Still, it is extremely common for helicopter pilots to fly through them to reach their mission area. However, with the continued increase in civilian air traffic, dedicated military corridors have shrunk significantly, complexifying navigation.

Thales has addressed this issue by combining two systems in one

The FMS200, designed like all other flight management systems to receive flight plans and aid navigation, can also receive military tactical route information. Whether from an onboard system or a ground station – if the helicopter can receive information via SATCOMs or HF – Thales designed the FMS200 to receive and seamlessly integrate tactical route information so that pilots do not have to merge civil and military airspace navigation routes and restrictions consciously – the system does it for them.

[...]



FMS Solution for civil and military helicopter

The Thales FMS 200 is a certified FMS used for civil and military operations, offering connectivity for external applications. Its flexible and open architecture with a very low footprint offers any kind of instantiation, as a full system or as a core software solution for new system or existing system retrofit.

Having the most efficient, priority-oriented trajectory displayed on a screen to enable continuous navigation across environments is one thing. Navigating as smoothly as possible and without distractions is entirely another. Indeed, legacy flight management systems can only provide stick flight path to reach a given waypoint. While this is helpful, it does not always provide the most accurate and detailed flying route.

Thales' FMS200 goes well beyond these legacy systems by computing and displaying accurate and flyable transitions along the flight plan, taking into account aircraft performances. This, in turn, offers helicopter pilots a much more detailed flight path they can follow point by point without ever having to adapt a manoeuvre for practical reasons.

With Thales' successfully proven flight management system, what pilots see on their screen is what they fly with their helicopter, thus allowing them, if necessary, to fully trust the trajectory even in auto-pilot mode.

[...] Any system, anywhere, any time

Because threats and technologies evolve at an ever-faster pace, business models built on the development of one-block flight management systems will soon become obsolete. Warfighters must be able to adapt to their operational environments at unprecedented speeds, and for this, they need systems that can accommodate modifications and changes as quickly as possible.

Open architecture, the commonly referred to solution to this problem, is not just another buzzword. It is the pathway to the future for more agile and flexible systems capable of integrating best-in-class technologies within short timeframes.

And that is precisely how Thales has evolved its FMS200. Already successfully operational on more than 1200 aircraft – from civil aviation aircraft to a wide range of military planes and helicopters – the FMS200 features an open architecture that not only allows for it to integrate new developments rapidly, but is also as easy to install in new machines as it is to integrate as a retrofit. That is why Thales' FMS200 was chosen as part of Black Hawk fleet upgrade. Today this open architecture conforms with FACE™ and Thales expects the FMS200 to be officially referenced in the FACE™ library this year.

Ultimately, the FMS200 was designed to reduce a pilot's cognitive load. From merging civilian and military routes to quickly aggregating large quantities of data and rapidly producing new routes, the FMS200 carries out all the increasingly complex tasks so that pilots can focus on mission success... with their heads up and eyes outside the cockpit.

40 years success story

EXPERIENCE

7,000 aircraft flying with Thales FMS

MATURITY

Over 100 million Flight Hours

Thales is onboard

Agusta A109; Airbus H160M, Tiger, C-295, CN-235; ATR 42/72-600; Dassault ATL2; Lockheed C130, P3 Orion; Sikorsky S-76D, UH-60 Black Hawk

Total flight confidence with the Thales FMS200

Thanks to the 40 years of expertise Thales has embedded in the FMS 200, flight crews can operate with confidence that the system will provide high integrity performance during all flights. Crews know the FMS guarantees precise navigation computations and precise trajectory control in all phases of flight. On bad weather conditions, the LPV and RNP-AR approach capabilities allow for a precise arrivals to airports with no ILS system.

