

HAWK - the deep space platform for navigation, communication, and scientific exploration

The boundaries of space exploration are increasingly expanding beyond Earth orbit, enabling human and robotic exploration towards more destinations in the Solar System, including the Moon, asteroids, and Mars. This journey into deep space has begun with tests and demonstrations on Earth and in space. In this regard, the HAWK platform is a deep space solution that can be adapted, scaled, and optimized based on user/customer requirements to achieve challenging goals.

The 6U configuration has been already selected for the implementation of two international missions in cooperation with NASA which will fly in 2021. ArgoMoon is the only European secondary payload of NASA's Artemis-1 mission. The main goal of the satellite is to take significant photos, both from the historical and operational point of view, of the second stage of the new launch vehicle (Space Launch System - SLS). ArgoMoon will be one of the first CubeSats to be released, so that it can get to a position to photograph SLS during the deployment of the other payloads. LICIAcube is part of NASA's DART mission which is the first demonstration of the kinetic impact technique to change the trajectory of an asteroid. The main objective of LICIAcube is to provide scientific data and photos of the impact of the main spacecraft with the asteroid in order to analyse and determine the success of the mission and to observe the plumes generated by the impact.

The 27 U configuration is the solution to provide communication and navigation service in two different planets. ANDROMEDA (Argotec Nanosatellite Design for Real-time Operations in Moon Environment and Deep space Applications) is a constellation of lunar-orbiting microsatellites intended to provide real-time communication and navigation services to lunar and cis-lunar assets, ranging from space agency missions such as rovers or human outposts to individuals such as tourists or private customers. The Mars Communication and Navigation (MCN) mission is a multi-satellite constellation comprising several deep-space microsatellites. The main is to prototype key technologies and provide an Earth—Mars communication and navigation infrastructure to enable a broad range of future Mars exploration missions without an expensive Earth link. The mission shall serve as a pioneer Comms/Nav network at Mars. The preliminary phase study is funded by ESA.

In conclusion, the use of the HAWK platform can be used for various applications and missions that push beyond Earth orbits thanks to its performance, adaptability, and scalability.