MACCON
MOTION UNDER CONTROL

TESAT SPACECOM
PIONEERING WITH PASSION

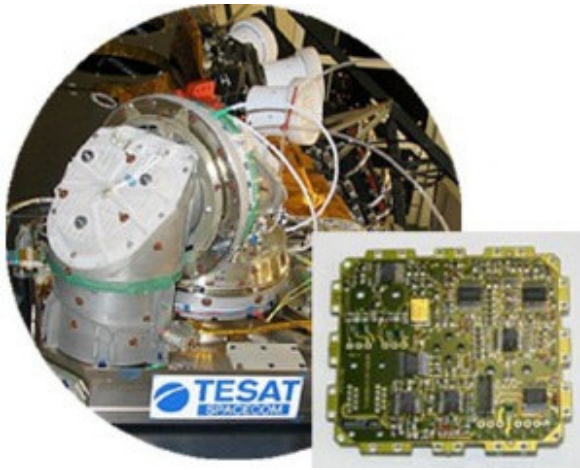
SCIENCE AND RESEARCH

Application: Laser Communication Terminal - LCT

Reliable and fast communication in space is essential for the integrity of a mission. Instead of transmitting at radio frequencies, modern research and telecommunication satellites employ laser beams for data communication, both between satellites and to the ground station. Bandwidths of 5.6Gbits/sec (1.064nm) and transmission distances exceeding 3,000km are supported. In addition to these benefits, less primary energy is required, the communication cannot be interrupted (without observation) and the ground terminal can be as compact as the transmitter and receiver on the satellite. The LCT provides this transmission capability. LCT has been employed on several satellites, including TerraSAR, GEO, AlphaSAT, and Sentinel-3

Project: LCT Pointing System

A critical component of the LCT is the optical system and its pointing control. 4 axes need to be positioned and controlled. There are two main axes (coarse, driven by thin ring torque motors, mounted around the optical beam) and two voice coil motors, which tilt the final pointing mirror (M3 of the Cassigran optical system). The fine drive system must be very accurate (< 0,5 µRad) and have a wide control bandwidth (>500Hz) in order to maintain beam stability and to allow quick and reliable acquisition of the target..



MACCON contribution

For the LCT MACCON designed the coarse motors as well as the electronics to control the coarse and fine drive systems. We are responsible both for the coarse and fine drive electronic controls.

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