

Laser Satellite Communication

Optical communication offering the best security and highest data rates



As global data traffic continues to surge and information security is becoming of strategic importance, the need for next generation communication networks has never been more urgent.

Airbus Netherlands leads the development, market introduction and sales of Optical Ground Stations and Mobile Terminals for maritime and airborne users.

LaserPort

Optical Ground Station (Feeder link, DTE & QKD)

At Airbus Netherlands, we are fully engaged in the development and industrialisation of a range of optical ground station products, compatible with the next generation of GEO Very High Throughput Satellites, LEO constellations and QKD satellites.

Specifications:

- Interoperability with ESTOL and SDA standards
- Transmission rates >100 Gbps up to Tbs class (for Feeder link)
- Transmission rates >2.5 -100 Gbps (for DTE)
- EAGLE -1 compatibility (for QKD)
- Open software interface architecture to seamlessly integrate with the customer environment
- System heritage (from multiple in Orbit demonstrations) on Ground Station/ Terminal level, sub-system level (AO, beacon, electronics, control system, turbulence modeling and mitigation management) from LEO and GEO.
- Robust in broad environmental conditions
- Eye safe by design
- Adaptive Optics (AO) for downlink fiber coupling and uplink pre-compensation
- Beacon solution that supports SDA and ESTOL standards



Image: Optical Ground Station designed for ESA

LaserNode

Mobile Terminals (Airborne and Maritime)

With our LaserNode products end users can directly connect optically with the space segment from mobile platforms (aircraft, ships) anywhere around the world. Multiple mobile terminals are currently being developed by Airbus Netherlands.

Specifications:

- Interoperability with ESTOL and SDA standards
- Transmission rates: 2.5 Gbps, bi-directional
- Compact: Limited size, weight and power
- Low Probability Interception/Low Probability Detection, jam resistant and Beyond Line of Sight
- Allow worldwide connectivity
- System heritage on end to end system, sub-system level (opto-mechatronic module, electronics, control system, data processor/modem) from demonstration for air-air links and air-GEO in flight demonstration (2025).
- Eye safe by design
- Robust in broad environmental conditions

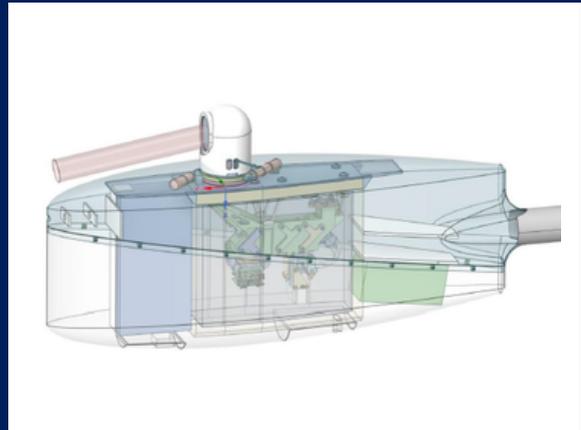


Image: Design of the Zephyr LCT Mobile Terminal

Benefits of Optical Communications:

- **Improved capacity:** Laser technology complements RF technology as it enables more than 10 to 100 times more throughput
- **Improved security:** Due to the narrow beam of lasers, optical communications is intrinsically secure, they have Low Probability Interception/Detection
- **Improved reliability:** Lasers can be applied without bandwidth congestion, or licensing issues and is jam resistant

Airbus Netherlands

Our areas of expertise:

- Turn key system integration
- Series production
- User-driven requirement definition
- Link budgeting & satellite interface
- Real-life demonstration on user platforms

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