

Advanced Laser Communications for **NEXT-GENERATION** INFORMATION NETWORKS

With decades of experience in laser communications development, Ball Aerospace has significantly advanced the state-of-the-art for Earth- and space-based laser communications solutions that support military, scientific, and commercial markets.



**Ball Aerospace
& Technologies Corp.**

..... Agility to innovate. Strength to deliver.

Laser Communications

As information collection systems become more sophisticated, and user demand increases, the corresponding need for increased bandwidth places a heavy burden on communications links that carry mission-critical data to decision-makers, warfighters and scientists. Free-space optical communication systems support these needs and offer space-based and airborne users the same high-bandwidth benefit that fiber optic systems provide for applications on land.

Experts at Ball are using proven technologies and capabilities to develop a family of lasercom terminals to meet the needs of next-generation communication systems.

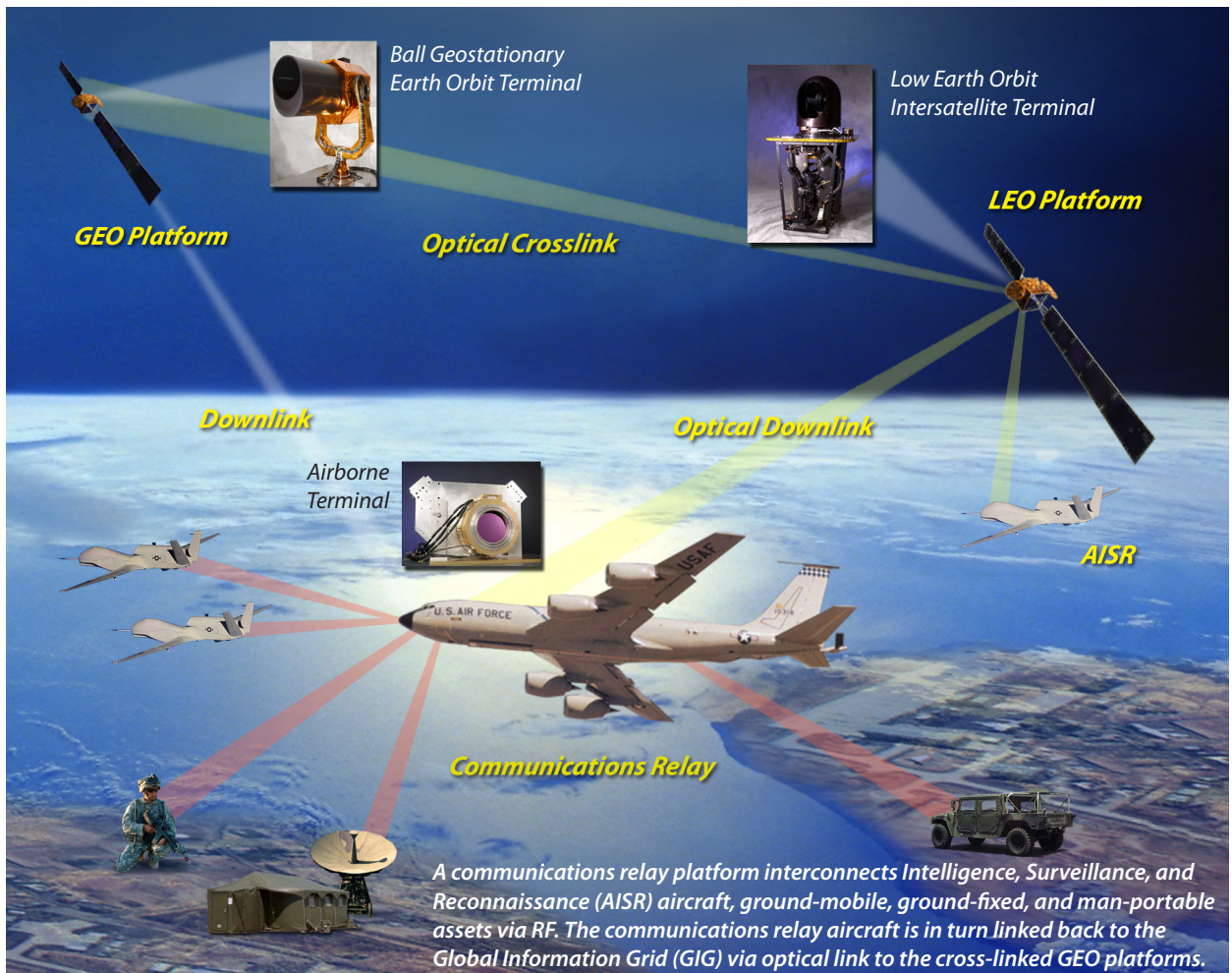
Ball is bridging all the segments of an optical communications architecture and is developing laser communication hardware solutions for each of these segments:

- GEO terminal: Developed for high data-rate GEO-backbone or GEO-user applications. The telescope and optical bench on this terminal are located

on a gimbal to provide optimal performance at the required aperture size while providing a large elevation and azimuth field of regard.

- LEO terminal: Developed for high data-rate LEO-or shorter range GEO-user applications. The optical head on this terminal features a gimballed flat mirror that feeds a fixed optical bench and telescope.
- Airborne terminal: Developed for high data-rate airborne applications up to and including relay to GEO satellites. High-bandwidth optical communication between aircraft and aircraft to a satellite requires a unique approach. The Ball-developed Risley prism provides the pointing and tracking solution for this terminal.

This product line is adaptable to a wide range of Department of Defense, NASA, and commercial applications. This array of solutions positions Ball as a preferred provider of laser communications terminals for agencies of the US government and major prime contractors.



A communications relay platform interconnects Intelligence, Surveillance, and Reconnaissance (AISR) aircraft, ground-mobile, ground-fixed, and man-portable assets via RF. The communications relay aircraft is in turn linked back to the Global Information Grid (GIG) via optical link to the cross-linked GEO platforms.

