Gilat DataPath

Product Brochure

TOGS

Transportable Optical Ground Station

Overview

The Transportable Optical Ground Station (TOGS)—co-developed by Cailabs and Gilat DataPath—delivers secure, high-throughput tactical communications in electromagnetically denied and time-constrained environments.

By combining Cailabs' TILBA®-OGS laser communications technology with Gilat DataPath's rugged, mobile architecture, TOGS enables low probability of detection and interception (LPD/LPI) bidirectional links with LEO satellite constellations without requiring permanent field infrastructure.



Key Features

- Contested Environment Resilience: Provides total immunity to RF jamming and intercept risks in electromagnetically denied zones.
- Rapid Tactical Deployment: Mounted on a rugged skid for truck or trailer transport; deploys rapidly without civil engineering or site preparation.
- Next-Gen Data Throughput: Delivers reliable 10+ Gbps bidirectional data rates to handle massive Earth Observation (EO) imagery, ISR data and mission updates.
- Operational Discretion: Low-profile, highly directional optical links ensure data transfer does not compromise sensitive forward command posts.



Specifications

Technical Specifications	
Satellite Altitude	LEO (500–1000+km); upgrade to MEO available
Standard	SDA Tranche 0, 1, 2 (version 3.1.0) 3 (version 3.2.0) and CCSDS (141.0–P–1.1)
Downlink	1530–1565 nm 100 Mbps ; 1 Gbps ; 2.5 Gbps ; 10 Gbps ; 100 Gbps upgrade available
CCSDS Beacon	1590 nm typical; 2 x 3W nominal power (typical)
Uplink	1553.33 nm; 1536.61 nm; 2 x 5W nominal power (typical); 2.5 Gbps
SDA Tracking Tone	40 or 50 kHz sine wave with modulation index 10, 20 or > 80 %
Eye Safety	Class 1M (IEC 60825–1:2014 / ANSI Z136.6) – Fully eye safe at the aperture
Modulation	Optical On–Off Keying (O3K), upgrade to 100 Gbps DP–QPSK available
Mission Configuration	Multi–mission compatibility; user–friendly software for mission configuration
Control and Monitoring	Automatic and manual operation through user–friendly software REST API available for integration in ground station networks
Turbulence Mitigation	Unique mitigation based on Cailabs' mechanically passive MPLC core technology · Downlink: TILBA®–ATMO (based on spatial demultiplexing) · Uplink: TILBA®–IBC (Incoherent Beam Combining)
Atmospheric and Weather Monitoring	· Weather: temperature, pressure, humidity, wind, rain · Atmospheric turbulence, including r0, irradiance, atmospheric loss
Temperature **Normal Operation** **Survival Conditions**	 –20° to 40 °C; upgrade to extreme conditions available –20° to 60° C
Humidity	< 90%; upgrade to extreme conditions available
Wind **Normal Operation** **Survival Conditions**	 < 60 km/hr; upgrade to extreme conditions available < 200 km/hr
Power Redundancy	Supports dual power input with ATS and integrated UPS
Telescope Main Aperture Diameter	800 mm (Nasmyth–Cassegrain)
Dimensions	Based on standard 20–foot ISO skid C–130 compliant (DKET) 6.0 m × 2.4 m × 2.2 m (L × W × H) / 240 in x 96 in x 96 in (L x W x H)
Network Interfaces	Ethernet or Fiber; REST API available

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