Mayflower Communications

DATA SHEET

NavGuard® 420 – High Integrity Global Navigation System (HI-GAINS) GPS Anti-Jam Solution

HI-GAINS (*NavGuard™ 420*)

2.6”L x 2.6”W x 1.3”H

HI-GAINS (NavGuard® 420) is the latest fully integrated, affordable GPS Anti-Jam solution from Mayflower Communications, the technology leader in small SWaP GPS Anti-Jam innovations for over 30 years. GPS Anti-Jam technology is critical for today’s military operations in GPS-contested NAVWAR environments. The HI-GAINS system has been flight tested by the U.S. Navy NAVAIR for unmanned aircraft system (UAS) applications, demonstrating its readiness and effectiveness in real-world scenarios.

Developed under the U.S. Navy NAVAIR HI-GAINS Phase II.5 SBIR program, the NavGuard® 420 was specifically engineered to meet the GPS protection requirements of SWaP-constrained small UAS and handheld UAS platforms. Its compact, high-performance design also makes it ideal for rotary-wing aircraft, dismounted operators, and ground combat vehicles.

Leveraging technology from Mayflower’s operationally proven MAGNA® GPS Anti-Jam systems, already deployed across multiple U.S. military and government platforms, the 4-channel NavGuard® 420 HI-GAINS delivers best-in-class performance in the smallest integrated GPS Anti-Jam form factor available. The system features a fully integrated CRPA antenna and AJ electronics within a FRPA-compatible footprint, and it consistently outperforms larger 4-channel Anti-Jam systems.

The HI-GAINS has successfully completed performance qualification testing by the U.S. Navy NAVAIR and will undergo full environmental testing to meet Government TRD specifications. Currently at Technology Readiness Level (TRL) 6, it has been integrated and flown on U.S. Navy platforms in NAVWAR environments.

Offering an affordable, compact, and high-performance alternative to larger and more expensive Anti-Jam systems, HI-GAINS is C/A, SAASM, and M-Code compatible, ensuring flexibility across mission profiles.

The HI-GAINS AJ algorithm has been proven in operational NAVWAR environments, and the system is available now for platform integration and qualification.

Contact Mayflower Communications to learn more or request pricing information.

High Integrity Global Navigation System (HI-GAINS) GPS Anti-Jam Solution





High level Features and Benefits

- 4-channel AJ design mitigates large number of spatially located WB/NB jammers
- Robust RF front-end handles high-power co-site signals
- Simultaneous (L1 and L2) GPS protection
- Compatible with any GPS receiver (C/A, P(Y), M-Code)
- Provides greater than 90 dB J/S anti-jam protection

Performance Metrics

- Dynamics: Suitable for very high dynamics applications
- Designed to counter Rotor Blade modulation
- Simultaneous dual frequency (L1 and L2)
- Mitigates multiple CW, partial band, broadband and pulsed jammers even under high dynamics
- Uses multiple element spatial temporal adaptive filtering (STAP)
- Greater than 40 dB of jamming suppression against multiple jammers

Antenna Electronics External Interface:

- VDC Power & Data I/O : 7-Pin Glenair Series 801 Mighty Mouse
- Power-Data I/O Pin-Out
- Single GPS RF Output Connectors: SMA (Male)
- Option to power unit through GPS RF Output SMA antenna port

Antenna External Interface:

- Antenna Output Connectors: SMA (Male)
- Built-in-Test (BIT) auto fault detection and logging
- Operating Temperature: -40° C to +85° C
- GPS RF Gain: Adjustable
- Noise Figure: <3.5dB

SWAP Metrics

- Size: AE w/ CRPA: 2.60 inches Length
  2.60 inches Width
  1.33 inches Height
- Weight: 7 oz (AE w/ CRPA)
- Power: 12VDC, <7 Watts

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