

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 1.19”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 for over 30 years. GPS Anti-Jam systems are critical for military operations in today's GPS contested NAVWAR environments. HI-GAINS AJ system has been flight tested by the US Navy NAVAIR for UAS applications.

NavGuard® 420 (HI-GAINS) was developed by Mayflower Communications under sponsorship by the US Navy NAVAIR under the HI-GAINS Phase II.5 SBIR program to support GPS protection requirements of the US Navy severely SWaP-constrained small UAS and Hand Held UAS platforms. The NavGuard 420 is well suited for any small SWaP application from small Rotary Wing Platforms, Dismounted Operators, and Ground Combat Vehicles.

NavGuard® 420 HI-GAINS leverages operationally proven MAGNA GPS Anti-Jam solutions which have been integrated by multiple US Military and Government Agency platforms. The 4-Channel NavGuard 420® HI-GAINS is the highest performance and smallest GPS anti-jam integrated solution on the market utilizing a fully integrated CRPA Antenna with integrated AJ electronics that is a FRPA footprint compatible system. The HI-GAINS consistently out performs many larger 4-Channel Anti-Jam solutions. NavGuard® 420 HI-GAINS has been performance qualification tested by the US Navy NAVAIR and will undergo Environmental Testing to meet Government Technical Requirement Document (TRD) specification requirements. The HI-GAINS is a TRL 6 and has been integrated on US Navy Platforms to be flown in a NAVWAR Environment.

HI-GAINS AJ solution offers an affordable SWaP-C alternative over larger and more expensive existing anti-jam systems. This Anti-Jam system is C/A, SAASM and M-Code compatible.

The HI-GAINS AJ Algorithm in its current form has been proven in Military NAVWAR Environments. HI-GAINS is available to support platform integration and qualification. Please contact us for additional information and pricing.

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High level Features and Benefits

- 4-channel AJ design mitigates large number of spatially located WB/NB jammers
- Supports BFEA
- 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
- Upgradable with Direction of Arrival (DoA)

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 : 10-Pin Glenair Power-Data I/O Pin-Out
- Single GPS RF Output Connectors: SMA (Male)

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
1.19 inches Height
- Weight: 4 oz (AE w/ CRPA)
- Power: 28VDC, <10 Watts

NavGuard® is a registered trademark of Mayflower Communications Company, Inc.

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