



NAVHUB™ – 100 NAVIGATION SYSTEM

ADVANCED, ASSURED PNT FOR GROUND PLATFORMS

Mission-specific navigation in a small, light, rugged form

At Collins Aerospace, we have a deep expertise in providing position, velocity, and timing (PVT) for military surface mobility. We leveraged that experience to design our NavHub™-100 navigation system to specifically meet the fast-moving, demanding environments of maritime operations. NavHub-100 also provides the navigational capabilities, interfaces and upgrade paths that support future technical upgrades on Naval platforms.

Employing our next-generation positioning, navigation and timing (PNT) technology, Collins NavHub-100 offers an integrated navigational solution based

on our modernized GPS product lines and variety of optional sensors. Our solution brings heightened protection levels against the evolving GPS threats that warfighters are facing in battle today.

Additional benefits include Military Code (M-Code) capability and improved levels of reliability through patented Modernized Signal Tracking (MST) that enhances GPS integrity.

Our NavHub-100 capabilities generate and distribute an assured PNT solution that will maintain the integrity of positioning and timing during operations in GPS-contested environments. They enable vehicles to select a navigation device that meets mission-specific needs. These needs can range from low-intensity operations to high jamming and spoofing threats and GPS-denied combat environments.



KEY FEATURES & BENEFITS

- Provides a high-assurance, accurate navigation solution across GPS threat environments
- Implements modernized signal tracking to ensure GPS integrity
- Supports Defense Advanced GPS Receiver (DAGR) standard interfaces and VICTORY
- Provides M-Code security
- Offers L1 and L2 GPS signal reception
- Extends performance in a jamming environment
- Easily integrates with DAGR form factor and legacy connectors

Collins NavHub-100 generates and distributes Assured Positioning, Navigation and Timing (APNT) information to all systems on board the platform through one device.

Additional protection comes with the ground-based Collins MSAS-100 multisensor antenna system anti-jam antenna, providing superior immunity in the most severe GPS-challenged environments.

Our NavHub-100 provides a flexible single device solution that can be adapted, enhanced, updated and supported throughout the life of the host platform. This approach simplifies design, manufacture, logistics, accounting and long-term support. It provides the user with a solution to all platform needs through one device, fitted with selected sensors, which can be upgraded throughout the life of the vehicle.

Housed in a small, lightweight and rugged chassis, NavHub-100 provides the interfaces needed to enable further navigational augmentation through the integration of additional external sensors (such as IMUs, magnetic sensors or odometers). This can enhance performance and provide assured PNT in GPS-challenged and GPS-denied environments.

To reduce vehicle system (MSAS-100, optional) changes, we implemented a smart, two line-replaceable-unit (LRU) system that cleanly replaces the existing navigation system in the vehicle for easier upgrade and sustainability.

PHYSICAL CHARACTERISTICS

Size/volume	7.33 in. L x 4.532 in. W x 2.532 in. H
Weight	3.3 lbs
Power (vehicle operating)	9 VDC to 32 VDC <10 W
Temperature (operating)	-40° C to 70° C

SPECIFICATIONS

Anti-jamming performance*

- Better than 41 dB J/S while tracking (state 5)
- Better than 54 dB J/S (state 3)

*Additional information can be provided in a classified forum

SPECIFICATIONS (CONT.)

Interfaces

- Four serial DAGR compliant interfaces, implementing IS-GPS-153 and NMEA protocols
- SINCGARS output
- Victory data bus 1.8 compatible
- UTC 1PPS Out
- ASPN-capable expansion Ethernet port and scalable architecture to support future sensors such as GNSS and visual odometry
- Ethernet maintenance port for reprogramming and test data collection
- DS-101 key loading
- Direct RS-232 connection to GPS M-Code receiver
- Hot start and time transfer capabilities

System characteristics

- GPS/INS navigator
- Advanced integrity algorithms (OSIRIS and SENTRI) to provide an assured solution
- Ground-aided navigation for GPS-denied conditions (less than 1% distance traveled)
- External velocity sensor input that aids PNT during GPS outages
- Precision time frequency estimation for computing sub-nanosecond time accuracy
- Internal OCXO time reference for maintaining time accuracy
- Multiple disciplined output clocks for precision time applications
- Designed to integrate with high capability anti-jam systems such as MSAS-100
- Four complete DAGR compliant interfaces to allow for easy integration with existing, fielded systems and servicing up to eight directly connected serial client systems
- Victory data bus 1.8 compliant in order to facilitate integration on Victory-capable vehicles



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