

MAPS Fight Tonight

Assured Positioning, Navigation & Timing (APNT) System



Provides rapid transition to anti-jam, M-code protected APNT solution

Designed to reuse existing mounting provisions to reduce retrofit time to under 1 hour

Continuously distributes assured PNT data to vehicle end-point devices

Uses ethernet and serial protocols

Maintains PNT integrity in GPS degraded and denied environments

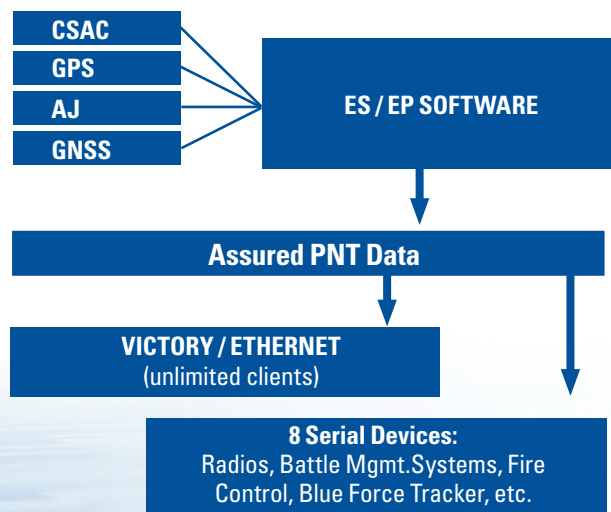
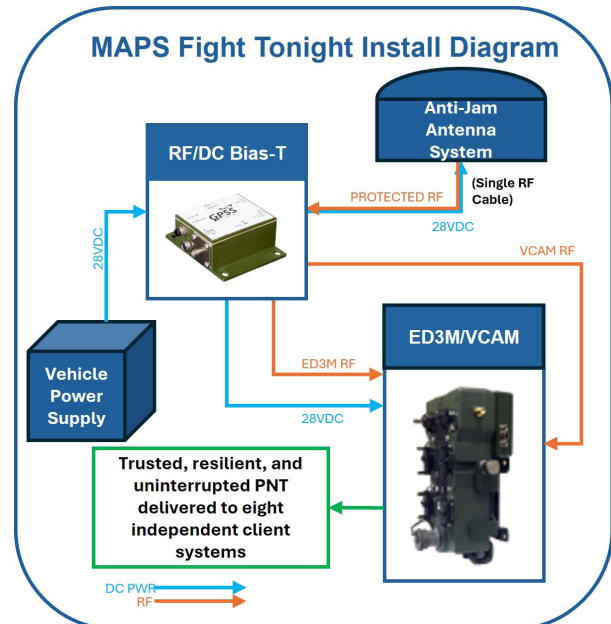
Accepts input from any anti-jam antenna for increased PNT assurance

Contact GPS Source for product availability and recommendations

Overview

The GPS Source Mounted Assured PNT System - Fight Tonight (MAPS FT) system provides trusted and validated positioning, navigation, and timing data from GPS M-code signals. The system can operate in degraded and denied environments through use of additional PNT sensors. It allows a platform to rapidly transition to an APNT architecture from legacy and obsolete GPS systems.

MAPS FT creates and distributes digital PNT data, including IS-GPS-153, NMEA, 1PPS, and HAVE QUICK, to as many as eight independent client systems via RS232 or RS422 serial connections. MAPS FT also supports PNT distribution via Ethernet by way of VICTORY protocol.



MAPS Fight Tonight

ED3M - Enhanced D3



ED3M is a COTS PNT hub providing **SAASM or M-code** protected GPS data. ED3M with VCAM installed retains 100% compatibility with all standard DAGR mount accessories and occupies the same space claim as the DAGR.

- **J1**
 - Key fill/COM3 port (replicates DAGR J1)
- **J2**
 - Configuration Utility/Diagnostics Port
- **J2 - X**
 - Each of the J2-X interface connectors replicate DAGR J2 (supports up to 8 individual clients).
 - Each port distributes independent IS-GPS-153 and MSID messages via COM1 (RS232) and COM2 (configurable RS232 or RS422); PPS (1PPS UTC, 10PPS UTC & T-Mark); HAVEQUICK.
 - Supports clients such as Tactical radios, FBCB2/BFT, Laptop/Falconview, MRT's, etc.
- **J3**
 - RF Port, compatible with AJ or FRPA GPS antenna.
- **J4**
 - 28VDC Switched Vehicle Power (required)

Victory/CSAC Accessory Module (VCAM)



- Internal **Chip-Scale Atomic Clock (CSAC)** for resilient time capability, provides precise time to within 100 ns of UTC when GPS available, and within 1 μ s of UTC for up to 8 hours in a GPS denied environment
- **Elec. Surveillance / Elec. Protection** capability with Talen-X, Inc. Broadshield™ ES/EP application for detection of threats and validation of GPS data signals
- Designed to operate with **Fixed Radiation Pattern Antenna (FRPA)** that feeds signal data to dual GNSS receivers, confirming integrity and validity of military GPS signals
- **Ethernet** interface to host platform
- **VICTORY Compliant 10/100/1000 Base-T per IEEE 802.3**
 - PNT Victory Messages:
 - Direction Travel Message (TX)
 - Orientation Message (TX)
 - Position Message (TX)
 - GPS Receiver Service (TX)
- Protected, GPS-synchronized Stratum 1 Network Time Protocol (NTP) Node

DC/RF Bias-T Modules



The **Upper and Lower Bias-T Modules** allow for 28VDC power to be routed to the Anti-Jam antenna on the existing RF line, eliminating the need for routing an additional power cable externally on the vehicle. The Bias-T configuration can be designed to support antennas with internal bias-Ts (single-cable solution) or secondary power connectors.

- Reuses existing DAGR Extended Mount, mounting hole pattern, and DAGR power cable.
- Supports multiple Anti-Jam antenna vendors and models
- Environmentally qualified to MIL-STD-810 (Temperature, Shock, Vibe, Humidity, Water Intrusion)
- EMI/EMC qualified to MIL-STD-461 (Conducted/Radiated Emission/Susceptibility)
- Currently fielded to hundreds of systems across multiple ground vehicle applications, within US Army and US Marine Corps.
- Low integration cost and reasonable hardware price allows for non-Tier 1 programs to outfit entire fleet quickly within standard budget constraints

Anti-Jam Antenna System (AJAS)



MAPS Fight Tonight is compatible with multiple **Anti-Jam Antenna Systems (AJAS)**. This allows the platform integrator to choose their AJAS based on cost and performance parameters suitable for their program.

The MAPS Fight Tonight system will compensate for time delay introduced by the AJAS with a simple drop-down menu in the FLOtalk configuration software that will persist across power cycles and power removal.

- Integrates AJAS & FRPA to First and best line of defense against GPS interference, jamming, and spoofing
- Multiple AJAS vendors and models supported in current MAPS FT library
- Additional AJAS being added to support library regularly, including custom options
- Several mounting options exist for re-using RA-2 or FRPA-3EW hole pattern, easing integration overhead
- Single-cable solution (with bias-Ts) makes integration time and effort a non-factor, despite higher power requirements

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