A-PNT-capable, Highly Accurate Fiber Optic Gyro-based 3D Navigation for all Terrains

The fiber optic gyro (FOG)-based TACNAV 3D tactical Inertial Navigation System provides an Assured Position, Navigation and Timing (A-PNT) solution with an embedded GNSS and optional Chip-scale Atomic Clock (CSAC). Its modular tactical design and flexible architecture allow it to function as either a standalone tactical navigation solution, or as the core of an expandable, multi-functional Battlefield Management System (BMS).

TACNAV 3D joins the line-up of EMCORE’s inertial navigation systems and builds upon the success of the battle-proven EMCORE TACNAV family of products, and incorporates EMCORE’s highest performing Inertial Measurement Unit (IMU).

Ideal Navigation and Pointing Solution for the Digital Battlefield

Providing extremely accurate heading and dead reckoning navigation and orientation, TACNAV 3D delivers 100% situational awareness in GNSS-denied environments with greater accuracy and at a lower cost than competing navigation systems.

Designed to easily integrate with BMS, TACNAV 3D provides reliable vehicle position, making it a vital component for effective battlefield management. Compact and lightweight, TACNAV 3D was designed for the close confines of turreted and non-turreted vehicles.

Built-in Options

- CSAC timing option maintains timing signal integrity during GNSS loss, a critical feature in preventing timing delays of PPS output to military radios, etc.
- Iridium transceiver option transmits/receives vehicle position, waypoint, and target location to/from command center or other vehicles. TACNAV 3D also receives messages from the BMS to pass on to the command center via the Iridium short burst message capability.
- TACNAV 3D can receive/transmit data over Ethernet, CANbus, or RS-422 serial data bus.

For situational awareness in GNSS-denied environments, three-dimensional navigation, and battlefield management, EMCORE’s TACNAV 3D is the state-of-the-art navigation engine for today’s military technology.
Technical Specifications

**General Performance**

<table>
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<tr>
<th>Positional Accuracy</th>
<th>With GNSS: 2-3 meters RMS</th>
<th>Without GNSS: ±0.2% distance travelled, typical</th>
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<tr>
<td>Heading Accuracy (dynamic)</td>
<td>GNSS Align Heading: 0.05° RMS</td>
<td>Without GNSS: ±0.3° 1°</td>
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<td>Location Format: User Selectable: over 200 grids and datums available</td>
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<td>Pitch &amp; Roll Accuracy: 0.05°</td>
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<td>Latitude Capability: Latitude independent with GNSS</td>
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<td>GNSS: Supports GPS, GLONASS, GALILEO, and Beidou</td>
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<td>Timing: 1 PPS output (1µs, 5 hrs.)</td>
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**Interfaces**

- **CANbus**: J1939, CANopen (optional)
- **Serial**: RS-422
- **Ethernet**: UDP (optional), TCP-IP (optional)

**Physical**

- **Input Voltage**: +28 VDC (18-36 VDC) MIL-STD-1275
- **Power Consumption**: 15 watts
- **Dimensions**: 148.6 mm (d) x 203.2 mm (w) x 101.6 mm (h) (5.85” x 8” x 4”) measurements include flanges
- **Weight**: 3.2 kg (7 lbs)

**Environmental**

- **Temperature**: MIL-STD-810G Operating: -40°C to +65°C
- **Altitude**: 15,000 meters (50,000 feet)
- **Environment**: MIL-STD-810G - Humidity, Salt Fog, Sand, Dust & Fungus
- **Shock**: MIL-STD-810G
- **EMI/RFI**: MIL-STD-461F Class A3, digital equipment
- **Vibration**: MIL-STD-810G
- **MTBF**: 45,264 hours

For More Information

+1 866.234.4976 | emcore.com/nav | navigation-sales@emcore.com

EMCORE Corporation
2015 Chestnut Street, Alhambra, CA U.S.A.
+1 626.293.3700 +1 626.293.3429

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DS_TACNAV_3D_09.22