



Photonic Integrated Chip





Integrated Navigation & Pointing for the Digital Battlefield

Introducing TACNAV 3D Inertial Navigation System

The fiber optic gyro-based TACNAV 3D Inertial Navigation System provides full three-dimensional navigation and an embedded GNSS and EMCORE's exclusive Photonic Integrated Chip (PIC) technology. Its modular tactical design and flexible architecture allow it to function as either a standalone inertial navigation solution or as the core of an expandable, multi-functional battlefield management system.

TACNAV 3D is the newest of EMCORE's inertial navigation systems and has built upon the success of the battle-proven EMCORE TACNAV family of products.

TACNAV 3D incorporates EMCORE's breakthrough 1750 IMU which combines 3 axes of EMCORE's compact high accuracy DSP-1750 Fiber Optic Gyro (FOG), with 3 axes of high performance MEMs accelerometers.

Ideal Navigation and Pointing Solution for the Digital Battlefield

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

Easily Integrates with Battlefield Management Systems (BMS)

TACNAV 3D provides reliable vehicle position, making it a vital component for effective battlefield management. Compact and lightweight, TACNAV 3D is designed for the close confines of turreted and non-turreted vehicles. With its compact size, low weight and low power consumption, it is the ideal navigation and pointing solution for the digital battlefield.

Built-in Communications Option

TACNAV 3D is fitted with an Iridium® transceiver to transmit and receive vehicle position, waypoint, and target location to or from a command center or



EMCORE's TACNAV 3D is a perfect solution for both turreted and non-turreted vehicles.

other vehicles. In addition, TACNAV 3D can receive messages from the BMS to pass on to the command center via the Iridium short duration burst message function. TACNAV 3D can also receive and transmit Ethernet and CANbus signals, and RS-422.





Key Features & Attributes

- Compact full 3-dimensional navigation
- 100% situational awareness with or without GPS/GNSS
- Modular design for expandability
- Embedded GNSS
- · Multiple interfaces for ease of integration
- Ethernet connectivity
- CANbus
- Integrates with a variety of military GPS systems
- Built-in two-way Iridium satellite communications for messaging and secure position reporting

Applications

Navigation for:

- Light armored vehicles
- Wheeled or tracked armored vehicles
- Medium and heavy combat vehicles
- Main battle tanks



EMCORE's TACNAV 3D has multiple independent CANbus, Ethernet, and RS-422 interfaces.

Easily Interfaces with:

- External GPS (in place of internal)
- Battlefield Management Systems (BMS)
- Laser Rangefinders (LRF)
- Laser Warning Receiver Systems (LWRS)
- Turret Angle Encoders
- Integrated Turret Data Systems
- EMCORE Universal Multilingual Display(s)
 - Night vision capable

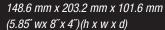


Commander's Display
Configuration



Driver's Display Configuration











Technical Specifications

General Performance

Positional Accuracy: With GNSS: 2-3 meters RMS Without GNSS: ±0.2% distance traveled Heading Accuracy (dynamic): **GNSS Align Heading:** 0.05° RMS Without GNSS: ±0.20° Start-up: Stores location at shutdown User Selectable: Over 200 grids and **Location Format:** datums available Warm-up Time: 20 seconds 0.05° Pitch and Roll Accuracy (dynamic): Latitude Capability: Latitude independent with GNSS Supports GPS, GLONASS GNSS:

(Beidou and Galileo optional)

TACNAV products are controlled by the Arms Export Control Act (Title 22, USC Sec 2751 et seq.) and the International Traffic in Arms Regulations, ITAR, 22 CFR 120-130, and may not be exported from the United States or disclosed to a foreign person in the United States except as authorized by those regulations.

Interfaces

CANbus:	J1939, CANopen
Serial:	RS-422
Ethernet:	UDP. TCP-IP

Physical

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

Environmental

Temperature:	MIL-STD-810G Operating: -32°C to +65°C (-26°F to 149°F)
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







