



TRNAV ONBOARD TERMINAL (NANO)

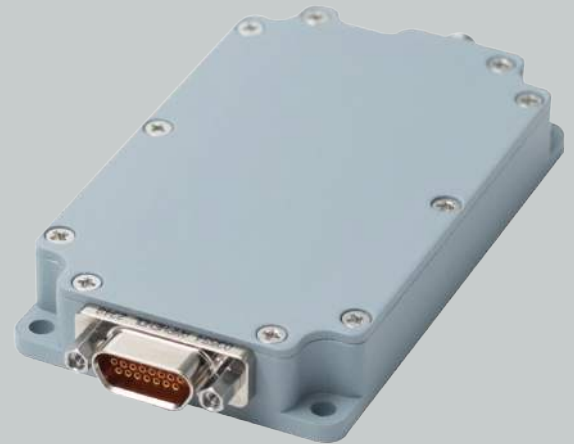
OVERVIEW

In an environment where GNSS integrity and availability are increasingly challenged, **Terrestrial Radio Navigation System (TRNAV)** delivers a reliable and assured **PNT (Positioning, Navigation, and Timing)** for manned/unmanned air, land and maritime platforms.

TRNAV Onboard Terminal is capable of generating its own position by processing the time and position it has received from reference Terrestrial Radio Navigation System (TRNAV) Ground Terminals.

After determining its own position, the Onboard Terminal also operates as a beacon, transmitting signals and serving as a reference station like a Ground Terminal for other Onboard Terminals.

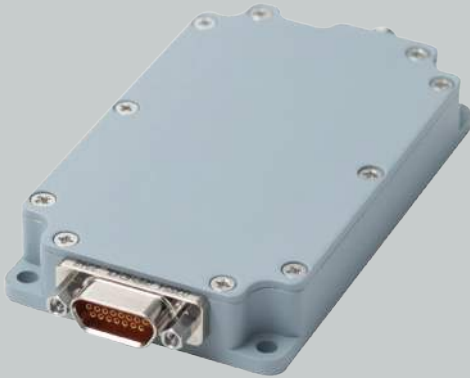
Its compact form factor enables seamless integration into airborne, land-based, and maritime platforms.



KEY FEATURES

- **Integrated Navigation and Communication:** Combines navigation, timing, and high-bandwidth communication within a single, integrated system. Delivers precise Positioning, Navigation, and Timing (PNT) information, even in contested or GNSS-denied environments.
- **Ad-Hoc Mesh Networking:** Automatically forms self-organizing mesh networks, enabling seamless communication under node mobility without reliance on a central infrastructure.
- **Automatic Time Synchronization:** Provides native time synchronization, eliminating the need for external timing sources and simplifying system deployment and operation.
- **Relaying Capability:** Extends operational range and enables reliable communication with non-line-of-sight nodes through multi-hop relaying.
- **Dynamic Network Management:** Allows nodes to seamlessly join, rejoin, or leave the network as needed, ensuring flexibility and adaptability.
- **Flexible Operating Modes:** Supports multiple modes of operation, including RxTx and Rx-only configurations, to meet diverse mission and platform requirements.
- **Compact and Lightweight:** Small form factor and low weight enable easy integration across multiple platforms (UAVs, manpacks, vehicles).
- **High-Speed Platform Performance:** Offers enhanced navigation performance for high-dynamic and high-speed platforms compared to conventional GNSS-based solutions.
- **Robust Security:** Implements AES-256 encryption and supports spread-spectrum techniques such as Frequency Hopping Spread Spectrum (FHSS) and Direct Sequence Spread Spectrum (DSSS) for secure and resilient communications.

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Product Code

TUALPF-TRX-NANO-S01



Weight (g)

95 ± 5



Dimensions (mm) **

75 x 45 x 14,5



RF Output Power

6 W



Data Interfaces

Ethernet, RS485



Mating Connector

Micro D (M83513) 15 Pin



Data Encryption

AES 256



Environmental Tests

MIL-STD-810G



RF Connector - Data Link

SMA Female



Range *

45 km (Typical)



EMI / EMC

MIL-STD-461F



Multiple Access Type

TDMA (Adhoc)



Input Voltage

28-32 VDC



ECCM

FHSS/DSSS



Power Consumption

Max: 35 W

Typical: 10 W@20% duty cycle

* via an omnidirectional antenna

** dimensions exclude connectors and antenna

TRNAV

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TUALCOM

www.tualcom.com

sales@tualcom.com

+90 (312) 485 22 85



160022601