time • location • awareness

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TracsTDMA

Tracs-TDMA is an intelligent data network system, which operates at UHF and VHF frequencies permitting continuous realtime tracking, precise positioning and messaging for a wide variety of applications. Operating on a Time Division Multiple Access principle the system is extremely flexible in configuration, giving the mobile data system integrator complete control over messaging rates and content, with the advantage of fully integrated positioning up to RTK accuracies if required.

Globavista dynamic repeater technology enhances communication reliability and significantly extends the operational range of the Tracs system beyond the normal line of sight restrictions. TracsTDMA is ideal for real-time tracking applications allowing the reporting of integrated GPS position back to a control centre display system. At the same time, Differential GPS corrections, including RTK, can be broadcast through the network for precise positioning applications requiring up to centimetric accuracies.

Data Communication Between Units

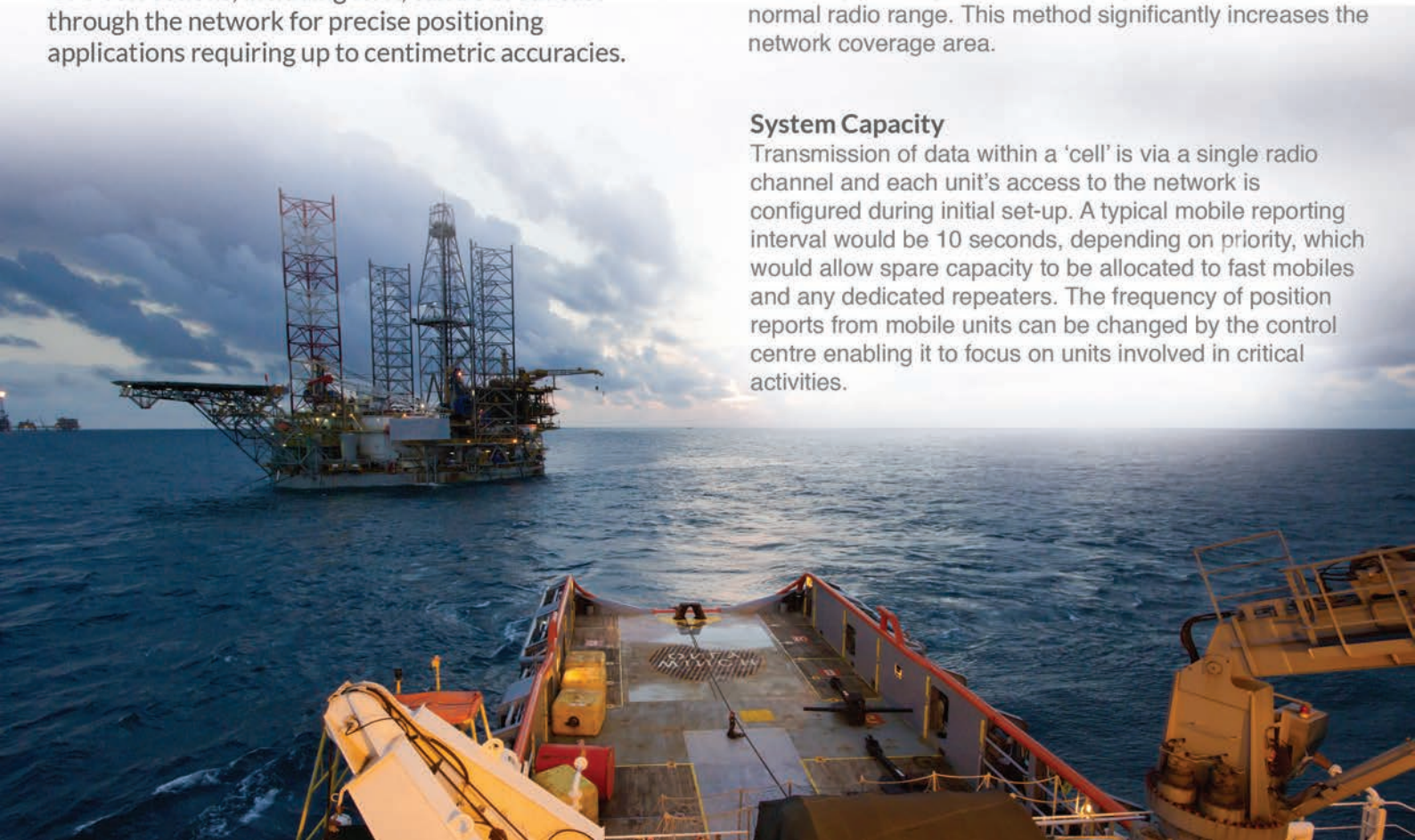
As well as position reporting to a control centre and the distribution of RTCM or DGPS correction data from an integrated reference receiver, messages can be routed from one mobile to another. Selective or group messaging is possible from the control centre as is the facility for units to be configured dynamically. Voice radio traffic can be reduced and communications in crowded frequencies made faster

Auto Adaptive Repeater Mode

As well as using conventional repeaters, any TracsTDMA unit in a system can operate intelligently as a repeater. Each mobile unit monitors the communications status of other units in its local area,and should the path between two other units be obscured, the unit will automatically pass on the message during the next time slot allocated to the originator of the message. In this way messages can be re-broadcast to circumvent radio line of sight limitations or to relay messages made from beyond the network's normal radio range. This method significantly increases the network coverage area.

System Capacity

Transmission of data within a 'cell' is via a single radio channel and each unit's access to the network is configured during initial set-up. A typical mobile reporting interval would be 10 seconds, depending on priority, which would allow spare capacity to be allocated to fast mobiles and any dedicated repeaters. The frequency of position reports from mobile units can be changed by the control centre enabling it to focus on units involved in critical activities.



Accessories and Options

GPS Modules And Configurations
TracsTDMA integrated positioning is available with either standard (5 metres) or precision (better than one meter) accuracy, and centimetric accuracy using RTK. Reference and mobile GPS receivers are built into the units, so separate GPS units are not required.

Display Systems
A range of mapping and display systems including Globavista Portal and Globavista Enterprise, is available depending on the application and on the functionality required.

Emergency Alarm Facility
Mobile units are fitted with an alarm button that causes the system to transmit an emergency position and status report with minimum delay. Emergency transmissions can be detected and acknowledged by adjacent mobiles as well as the control centre.

Fuel Monitoring
TDMA can be linked to rea-time fuel monitoring systems to provide remote monitoring of fuel used on board a vessel.

System Software and User Interfaces

Several packages are available for planning, configuring and operating the network depending on the client's requirements.

Network Planning and Configuration Software
This is used to design the network and assign transmission slots to mobiles to meet their perceived requirements for data capacity. The configuration file is then passed to the configuration software, which enables the units to be set up as required according to the network plan via a serial cable from a PC. Units retain the configuration in memory until reprogrammed.

Tracs Communications Controller (Tracs-CC)
Data can either be extracted directly from a Tracs-TDMA unit by the application software or TracsCC software can be used to manage The TracsTDMA data in more complex networks. This software is of particular benefit when larger systems are being used which include several base stations.

Control Centre Software
PC software to manage a database of the position reports and a graphical display of mobile locations is available. In addition, the software can provide message scheduling, coordinate conversion, system monitoring and network control functions for inclusion in either simple, single base station systems or multiple base/frequency systems..

Benefits and Features

- **Proven Technology Designed for Uncompromising Environments**
- **Integrated Tracking and Precise Positioning in One Unit for Multiple Vehicles**
- **Configurable Data Transfer Rates**
- **Proven Installations Globally in the Maritime & Mineral Exploration Environments**
- **Installed On a Broad Range of Specialist Vehicles & Vessels**

TracsTDMA

Channelisation Format:
TDMA (Time Division Multiple Access)

Range:
Line of sight operating ranges with integrated power output options of up to 10W. Range enhanced by reporter modes

Frequency Bands:
VHF 136 - 174MHz
UHF 440 - 512MHz

Number Of Channels:
The transceivers are configured to use any 10 channels in the band with the system configuration software

Transmitter Power Output:
2W or 10W integral PA

CCIR Emission Designator:
25KOF1D/12K5F1D

Error Correction:
Byte level Hamming (12,8) code, correcting 1 bit per byte, interleaved into blocks of 20 bytes

Antennae
Various depending on VHF, UHF, GPS combinations

GPS:
L1(1.575GHz), Gain 40dB, 5V DC, Azimuth 360 deg, Zenith 0 deg to 90 deg

VHF:
136MHz to 174MHz, -0.3dBd with optional radials, -3dBd surface mounted

UHF:
440 – 512 MHz

Optional:
Separate GPS and VHF/UHF antennae

GPS Receiver
Standard - Ublox (50 channel, LEA-chipset)
Higher accuracy - Septentrio AsteRx2
Precision - Real Time Kinematic

Electrical interfaces
Command Port
Two Serial ports
3 TTL inputs
1 TTL output
Emergency input

Power Supply:
9V to 36V DC. Load dump protection to 250V

Power Consumption
Maximum:
Transmit (2W P.A. 100% duty cycle) 12W
Transmit (10W P.A. 100% duty cycle) 40W
Receive 4W
Typical:
Transmit (2W P.A. 1 report/sec) 5W
Transmit (10W P.A. 1 report/sec) 7W

Temperature:
Operating -30 °C to + 60 °C
Storage -45 °C to + 70 °C

Waterproofing:
Tracs-TDMA and antenna IP 67 compliant. Dust proof with short term immersion to one-metre

Dimensions And Weight:
TDMA:
L 246mm W 140mm H 95mm, 3kg

Type Approval:
TDMA:
Meets ETS 300-113
CE approved

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