orbit
Connectivity in Motion

OceanTRx™4

1.15 m (4') Maritime Stabilized VSAT System

Leading the Way in Maritime Satcom

OceanTRx 4 is a rugged and innovative stabilized maritime satcom terminal, with a range of configurations and operation in multiple bands, including X, Ku, Ka and wideband Ka. It further expands Orbit's industry-leading OceanTRx series, featuring outstanding RF and tracking performance, high system availability, and robust performance under virtually any offshore conditions. Supporting the mission- and business-critical broadband needs of navy vessels, commercial and container ships, offshore drilling platforms and large yachts, it was designed for fast one-day deployment, simple updates and minimal maintenance. Orbit's maritime platform provides outstanding performance and high reliability, maximizing throughput and availability.

Innovation in Action

OceanTRx 4 is the first member of OceanTRx family that incorporates Orbit's patented simultaneous band antenna technology, delivering outstanding RF performance and pointing accuracy over time across all bands and eliminating rotating mechanical parts and cables. This feature enables flexible operation with new MEO/LEO constellations and over multiband HTS satellites.

Seamless Global Coverage

OceanTRx 4 ensures worldwide connectivity by supporting the full range of X, Ku and Ka (wideband and O3b) frequency bands, using optional RF configurations for GEO and MEO/LEO satellites. Leveraging satellites across geographical regions, it delivers seamless global coverage via Automatic Beam Switching (ABS) using industry-standard OpenAMIP and ROSS Open Antenna Management (ROAM) protocols. Electrically switchable polarization facilitates satellite switching and increases system versatility. In addition, OceanTRx 4 supports dual- or triple-antenna system operation enabling make-before-break handovers, which are crucial for seamless, uninterrupted MEO and LEO satellite connectivity.

Reliability and Durability

Designed to withstand the most demanding sea conditions, OceanTRx 4 features a rugged electro-mechanical design that complies with the most stringent environmental standards for shocks, bumps and vibrations – including MIL-STD-167-1A and the IEC-60721 standard in its enhanced configuration for defense applications.

Simple, One-Day Installation

OceanTRx 4 is easy to install, requiring no balancing and using a single cable for below-deck connectivity. Shipped pre-assembled and pre-tested over satellite, the system can be installed in a matter of hours rather than days. This means that OceanTRx 4 can be installed and commissioned while ships are on routine port calls, accelerating in-service times and substantially driving down operational costs.

Cost-Effective Operations
Designed for efficient on-board serviceability and maintainability, OceanTRx 4 features a highly accessible pedestal design, simplifying service support and field upgrades, with no need for complicated periodic balancing. Its modular approach permits smooth migration across the entire Ka-band range, whether via GEO or MEO/LEO satellites. It also allows for reconfiguration, as mission and commercial requirements change, through easily installed field-exchange kits. OceanTRx 4 shares common electronic Field Replaceable Units (FRUs) with other OceanTRx series terminals, enabling easier maintenance and support, shorter response times and lower total cost of ownership.

High Versatility and Multiple Configurations
OceanTRx 4's modular approach enables a wide range of configurations, RF packages, frequency bands and modem platforms, as well as up to 200W Block Up Converter (BUC) power levels. This flexibility greatly facilitates reconfiguration, upgrades and field maintenance, without the need for additional modifications or re-balancing. Other options include air conditioning and a wide choice of radome colors.

Remote Monitoring
Advanced remote monitoring capabilities allow complete replication of the system interface to remote laptops and devices. Combined with a built-in logger and spectrum analyzer, OceanTRx 4 enables off-site technicians to remotely monitor and control the system. They can securely perform troubleshooting and diagnostics operations as if they were aboard the vessel, substantially reducing operational costs. Open platform design supports the use of Simple Network Management Protocol (SNMP) for carrying out network and system management, while enabling system integration with any Network Operations Center (NOC). A secure remote connection is also available for software upgrades.

Full Regulatory Compliance
OceanTRx 4 complies with industry regulations and standards including ITU, FCC, ETSI, EutelSat, IntelSat, ANATEL and Mil-STD188-164C.

World-Class Customer Support
Through our international service centers, Orbit's trained support engineers are available 24/7 to handle the urgent needs of customers worldwide. A global inventory replenishment system ensures efficient spare parts distribution across regions. With the capability to remotely access systems for troubleshooting and diagnostics, Orbit's real-time service support increases availability for enhanced customer satisfaction and cost benefits.

Key Features

- Fast and easy installation
- Robustness and durability - used by dozens of navies worldwide
- Optional single- or dual-band simultaneous operation
- Worldwide connectivity over GEO, MEO and LEO satellites
- Resilient and secure remote monitoring
- World-class support

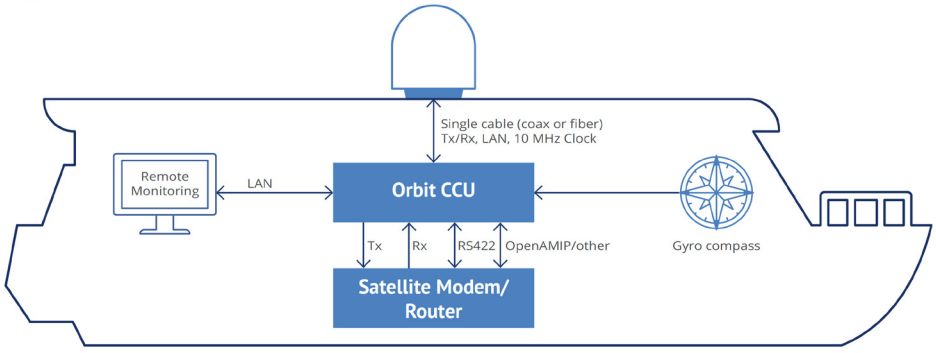
OceanTRx 4 - Features and Specifications

Antenna Type	Dual Offset Gregorian
Antenna Size	1.15 m (45")
Radome Size	D: 1.55 m (61"), H: 1.69 m (67")
Dynamic Accuracy	0.25 dB RMS
Dynamics (motion on a 40 m ship as per DOD-STD-1399-301A)	Tracking: Up to Sea-State 6 Survival: Up to Sea-State 8
Range of Mechanical Pedestal Axes	Azimuth: Continuous Elevation: -30° to +120° Cross Elevation: -75° to +75°
Ship Gyro Interface	NMEA 0183, Step by Step, Synchro
Modem Interface	L-band

System Weight (including radome, RF dependent)	< 215Kg
Enhanced Environmental Conditions Compliance	• Shock & Bump: IEC-60721-4-6 class 6M3, • Vibration: IEC-60721-4-6 class 6M3, MIL-STD-167-1A (mast-mounted equipment) • Temperature: -25°C+55°C as per IEC 60945:2002 • Wind: Up to 100 knots • Rain & Spray: IEC 60945 Section 8.8/IP Rating X6 • Humidity: IEC 60945:2002; Damp Heat Humidity: 93% (+/-3%) @ 40°C • Safety: IEC EN 60950-1 • EMC: Conducted & Radiated Emission Immunity; IEC 60945:2002; IEC 61000-4-2, 3, 4, 5, 6, 11

Frequency Band	X	Ku	Ka	Ka-Wideband
Frequency Transmit	7.9 to 8.4 GHz	13.75 to 14.5 GHz	29.0 to 31.0 GHz	27.5 to 30.0 GHz
Frequency Receive	7.25 to 7.75 GHz	10.75 to 12.7 GHz	19.2 to 21.2 GHz	17.7 to 20.2 GHz
Polarization Control (Electrically Switchable)	RHCP/LHCP	HOR/VER	RHCP/LHCP	RHCP/LHCP
XPD (Typical in Tx)	19 dB	30 dB	24 dB	24 dB
System G/T (Typical at mid-range, 30° elevation, clear sky including all losses)	14 dB/°K	19.2 dB/°K	20.3 dB/°K	19.5 dB/°K
System EIRP (Typical at mid-range including all losses)	48 dBW (with 20W BUC)	53 dBW (with 16W BUC)	57 dBW (with 12W BUC)	57 dBW (with 12W BUC)
BUC Size Options	10/20/40W	8/16/25/40/100W	5/12/16/20W	5/12/20W
Power Requirements Typical ADE & BDE 100-130VAC or 200-250VAC 50/60Hz	ADE system < 500 W W/O BUCs BDE equipment< 100 W			
Weight (Typical)	215 kg			

OceanTRx System Diagram



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