OceanTRx™

OceanTRx™ 4

1.15m (45”) Maritime Stabilized VSAT System

ORBIT *If you can conceive it, we can provide it.*



Global broadband evolution

OceanTRx™ 4 is an innovative platform supporting a variety of 1.15m stabilized maritime antenna system configurations in X, Ku and Ka (wideband and O3b) frequency bands. Designed to accommodate the current and future needs of the maritime market, it features outstanding RF performance, system availability and dynamic response under virtually any sea conditions. Supporting the mission and business-critical broadband application needs of frigates, container ships, offshore drilling support vessels, mega yachts and other vessels, it was designed for one-day deployment and simple ongoing updates and maintenance. Orbit's maritime platform enhances operational productivity, reduces expenses and increases profitability.

Inherent support for Ka

OceanTRx 4 features built-in support for Ka to ensure smooth migration to future high-speed services for the entire Ka range using GEO and NGSO satellites. It is a single platform that provides multi-band frequency support based on field-exchangeable kits.

Reliability and durability

Designed to withstand the most demanding sea conditions, OceanTRx 4 features a low-intensity, 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 and offshore O&G applications.

Simple, one-day installation

OceanTRx 4 is easy to install since it does not require balancing and uses a single cable for below-deck connectivity. Shipped pre-assembled, and pre-tested via satellite, the system can be installed in a matter of hours, rather than days. This means that OceanTRx 4 can be installed while ships are on routine port calls, substantially driving down operational costs and eliminating the need for vessels to await dry dock.

Cost-effective operations

Designed for efficient on-board serviceability and maintainability, OceanTRx 4 features a highly accessible pedestal design, enabling convenient service support and field upgrades without the need for periodic balancing. It shares common electronic Field Replaceable Units (FRUs) with its counterpart, Orbit's OceanTRx 7, allowing for lower cost of ownership, easier maintenance and support and shorter response times.

High versatility and multiple configurations

Built-in support – for a wide range of configurations, RF packages, frequency bands and modem platforms, as well as up to 100W Block Up Converter (BUC) power levels – facilitates field upgradability without the need for accurate balancing. OceanTRx 4 supports dual- or triple-system operation and comes with a radome available in a wide variety of colors.

The Orbit advantage

> **Highly efficient VSAT system**
>
> Dual offset Gregorian multiband antenna meets all satcom regulations and reduces service costs

> **Finest stabilized accuracy**
>
> Withstands extreme sea conditions and meets the most stringent maritime environmental requirements

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 feeds for GSO or NGSO 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.

Remote monitoring

Advanced remote monitoring capabilities allow complete replication of the system interface to any remote PC. Combined with an inherent logger and spectrum analyzer, OceanTRx 4 enables off-site technicians to remotely monitor and control the system. They can also perform troubleshooting and diagnostics operations as if they were aboard the vessel, thus 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 secured remote connection is also available for software upgrades.

Strict regulatory compliance

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

World-class customer support

With five regional service centers located around the globe, Orbit's trained support engineers are available 24/7 to handle the immediate needs of customers worldwide. A global inventory replenishment system ensures efficient spare parts distribution across regions. With a remote connection for troubleshooting and diagnostics, Orbit expedites service support and enhances overall cost-efficiency for its customers.

Covering diverse maritime sectors

- Naval
- Offshore Oil & Gas (O&G)
- Leisure and super yachts
- Commercial shipping

> **Simple installation**

Delivered fully assembled and tested, built-in multiband frequency support and field-upgradable configurations

> **World-class customer support**

Orbit's global support team provides 24/7 service with remote monitoring capabilities and on-site technical support

OceanTRx™ 4 - Features and Specifications

Features

Antenna Type	Dual offset Gregorian	Modem Interface	L-Band
Antenna Size	1.15m (45")	System Weight (including radome, RF dependent)	< 215 kg (474 lb)
Radome Size	D: 1.55m (61"), H: 1.69m (67")		
Dynamic Accuracy	0.25dB RMS	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
Dynamics (motion on a 40m 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		

Specifications

	X-Band	Ku-Band	Ka-Band (O3b)	Ka-Band Wide Band
Frequency Transmit	7.9 to 8.4 GHz	13.75 to 14.50 GHz	27.6 to 29.1 GHz	29 to 31 GHz
Frequency Receive	7.25 to 7.75 GHz	10.95 to 12.75 GHz	17.8 to 19.3 GHz	19.2 to 21.2 GHz
Polarization Control	RHCP/LHCP Electrically Switchable	HOR/VER Electrically Switchable	RHCP/LHCP Electrically Switchable	RHCP/LHCP Electrically Switchable
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	19.5dB/°K	20 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-SAT)	57 dBW (with 12W BUC-SAT)
Antenna Type/Size	Dual Offset Gregorian 1.15m			
Dynamic Accuracy under Sea Motion	0. 25dB RMS			
BUC Size Options	10/20/40W	8/16/25/40/100W	5/10/20W	5/12/16/20W
Radome Size Diameter/Height	1.55m/1.69m			
Power Requirements Typical ADE & BDE 100-130VAC or 200-250VAC 50/60Hz	ADE: 400W, BDE: 100W			
Weight Typical	215kg			

OceanTRx™ 4 Typical Block Diagram