



# OceanTRx™ 4

1.15m (45") Maritime Stabilized VSAT System





## Leading the Way in Maritime Satcom

OceanTRx™ 4 is a rugged and innovative stabilized maritime satcom platform, enabling a range of configurations in X, Ku and Ka (wideband and O3b) frequency bands. It further expands Orbit's industry-leading OceanTRx series, featuring outstanding RF performance, system availability and dynamic response under virtually any offshore conditions. Supporting the mission- and business-critical broadband needs of frigates, container ships, offshore drilling support vessels, large yachts and other vessels, it was designed for one-day deployment and simple updates and maintenance. Orbit's maritime platform provides outstanding performance and high reliability, while achieving a low total cost of ownership.

### Capability to Migrate to Ka

OceanTRx 4 allows a smooth migration to high-speed services across the entire Ka range, via GEO and NGSO satellites. It is a proven platform that provides multi-band frequency capability through easy field-exchange kits.

### 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 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, enabling convenient service support and field upgrades without the need for complicated periodic balancing. It 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

Modularly designed with a variety of configurations and options, OceanTRx 4 provides different RF packages, frequency bands and modem platforms, as well as up to 100W Block Up Converter (BUC) power levels. With multiple interfaces and network tools, OceanTRx 4 supports dual- or triple-system operation and comes with a radome available in a wide variety of colors.

### 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 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 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 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.

### Full 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 urgent 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 provides high cost-efficiency for its customers.

## Serving Diverse Maritime Segments

— Navies and Defense

— Offshore Oil & Gas (O&G)

— Leisure and super yachts

— Commercial shipping



# 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")	Enhanced Environmental Conditions Compliance	<ul style="list-style-type: none"> <li>Shock &amp; Bump: IEC-60721-4-6 class 6M3,</li> <li>Vibration: IEC-60721-4-6 class 6M3, MIL-STD-167-1A (mast-mounted equipment)</li> <li>Temperature: -25°C+55°C as per IEC 60945:2002</li> <li>Wind: Up to 100 knots</li> <li>Rain &amp; Spray: IEC 60945 Section 8.8/IP Rating X6</li> <li>Humidity: IEC 60945:2002; Damp Heat Humidity: 93% (+/-3%) @ 40°C</li> <li>Safety: IEC EN 60950-1</li> <li>EMC: Conducted &amp; Radiated Emission Immunity; IEC 60945:2002; IEC 61000-4-2, 3, 4, 5, 6, 11</li> </ul>
Dynamic Accuracy	0.25dB RMS		
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

