OceanTRx™ 7
2.2m (87") Maritime Stabilized VSAT Systems

Where Innovation is Standard

OceanTRx™

The Simple Way to Deliver Mission-Critical Broadband Services

OceanTRx™ 7 is an innovative platform supporting a variety of 2.2m stabilized maritime antenna system configurations in C, Ku and Ka bands. As a common platform, it is inherently designed to accommodate the current and future broadband needs of the maritime market. It is built for quick and easy installation, upgrade and maintenance, combining exceptional RF performance and system availability with an extraordinarily small footprint.

Supporting the mission and business-critical broadband application needs of commercial and naval vessels, OceanTRx™ 7 enables maritime users to enhance operational productivity and crew welfare, lower expenses, and increase profitability.

OceanTRx™ 7 product line comprises two product series:

300 Series

C/Ku band support

OceanTRx™ 7-300 features multi-band frequency support for C and Ku bands, based on field exchangeable kits.

500 Series

Ka inherent support

The 500 Series features built-in Ka fully compatible design to ensure smooth migration to future high-speed Ka services - for the entire Ka range - using GEO and MEO satellites. OceanTRx™ 7-500 provides multi-band frequency support for Ku and Ka bands, based on field exchangeable kits.

Revolutionary Space and Cost-Saving Design

Unmatched Low-Cost Shipping and Rapid Installation

Small enough to be shipped as a single, fully assembled unit in a standard 20 foot container, OceanTRx™ 7 drastically lowers shipping costs. Its 2.2m dish and 2.7m radome occupy 40% less deck space and weigh 30% less than industry-standard systems. Arriving at its destination pre-assembled and pre-tested over satellite, the system features a unique six-piece radome enabling final assembly and installation in a matter of hours, rather than days. The use of a single multiplexed coax cable further facilitates system set-up. This breakthrough design enables OceanTRx™ 7 to be deployed while ships are on routine port calls, substantially driving down operational costs and eliminating the need for vessels to await dry dock.

### Enhanced Serviceability and Platform Commonality for Cost-Effective Operations

Designed for efficient on-board serviceability and maintainability, OceanTRx™ 7 features highly accessible pedestal design, enabling convenient service support and field upgrade process that does not require accurate or periodic balancing. As part of ORBIT's new OceanTRx™ product line, OceanTRx™ 7 shares common electronic field-replaceable units (FRUs) with ORBIT's OceanTRx™ 4 system, allowing for lower cost of ownership, easier maintenance support, and shorter response times.

Cost-Effective Operations

Offering the industry's best RF performance-to-size ratio, OceanTRx™ 7 leverages cutting-edge modem technologies, such as adaptive coding modulation (ACM), to optimize satellite usage for unmatched system availability and connection uptime under a 2.2m antenna for C, Ku or Ka bands.

High Versatility and Multiple Configurations

Built-in support for a wide range of configurations with different RF packages (C, Ku, Ka*) and BUC power levels (up to 200W) facilitates field upgradability without the need for accurate balancing. The system is available with or without air-conditioning, supports dual or triple system operation and comes with either a white or gray radome.
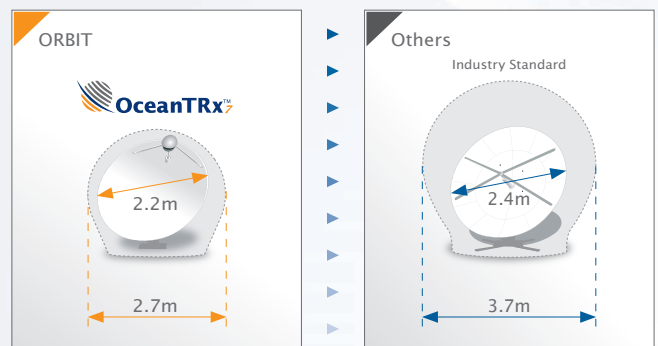
* Upon release

Seamless Global Coverage

OceanTRx™ 7 ensures worldwide connectivity by supporting the full range of C, Ku or Ka band frequencies using optional RF feeds for GEO or MEO satellites. Operating with satellites across geographical regions, OceanTRx™ 7 delivers seamless global coverage via automatic beam switching (ABS) achieved through the industry-standard OpenAMIP and ROSS Open Antenna Management (ROAM) protocols. Electrically switchable polarization facilitates satellite switching and increases system versatility.

Remote Connection, Monitoring, Diagnostics and Troubleshooting

Advanced remote monitoring capabilities allow complete replication of the system interface to any remote PC. Combined with an inherent logger and spectrum analyzer, it enables off-site technicians to remotely monitor and operate the system, or carry out troubleshooting and diagnostics as if they were on the ship, thereby reducing operational costs. Open platform design supports the use of SNMP for carrying out network and system management, while enabling system integration with any network operations center (NOC). Secured remote connection is available for software upgrades.

Strict Regulatory Compliance and Certifications

OceanTRx™ 7 complies with industry regulations and standards for C/Ku and Ka bands including ITU, FCC, ETSI, EutelSat, IntelSat and ANATEL.
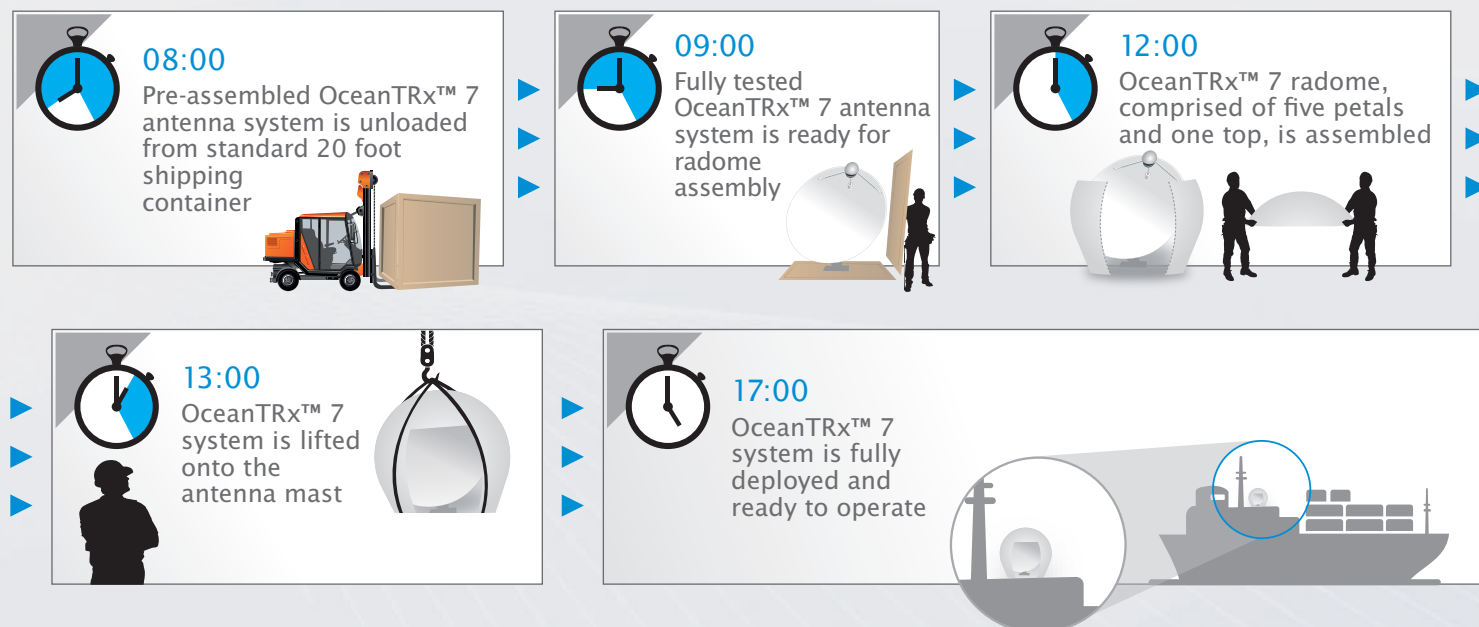
World-Class Customer Support

With five regional service centers located around the globe, ORBIT's trained support engineers/technicians are available 24x7 to handle the immediate needs of customers worldwide. A global inventory replenishment system ensures efficient spare parts distribution across regions. By using remote connection for troubleshooting and diagnostics, ORBIT expedites service support and enhances overall cost-effectiveness for its customers.

Covering Diverse Maritime Sectors
- Offshore Oil & Gas (O&G)
- Commercial Shipping
- Naval
- Cruise Vessels

Full System Deployment in a Day

08:00
Pre-assembled OceanTRx™ 7 antenna system is unloaded from standard 20 foot shipping container

09:00
Fully tested OceanTRx™ 7 antenna system is ready for radome assembly

12:00
OceanTRx™ 7 radome, comprised of five petals and one top, is assembled

13:00
OceanTRx™ 7 system is lifted onto the antenna mast

17:00
OceanTRx™ 7 system is fully deployed and ready to operate

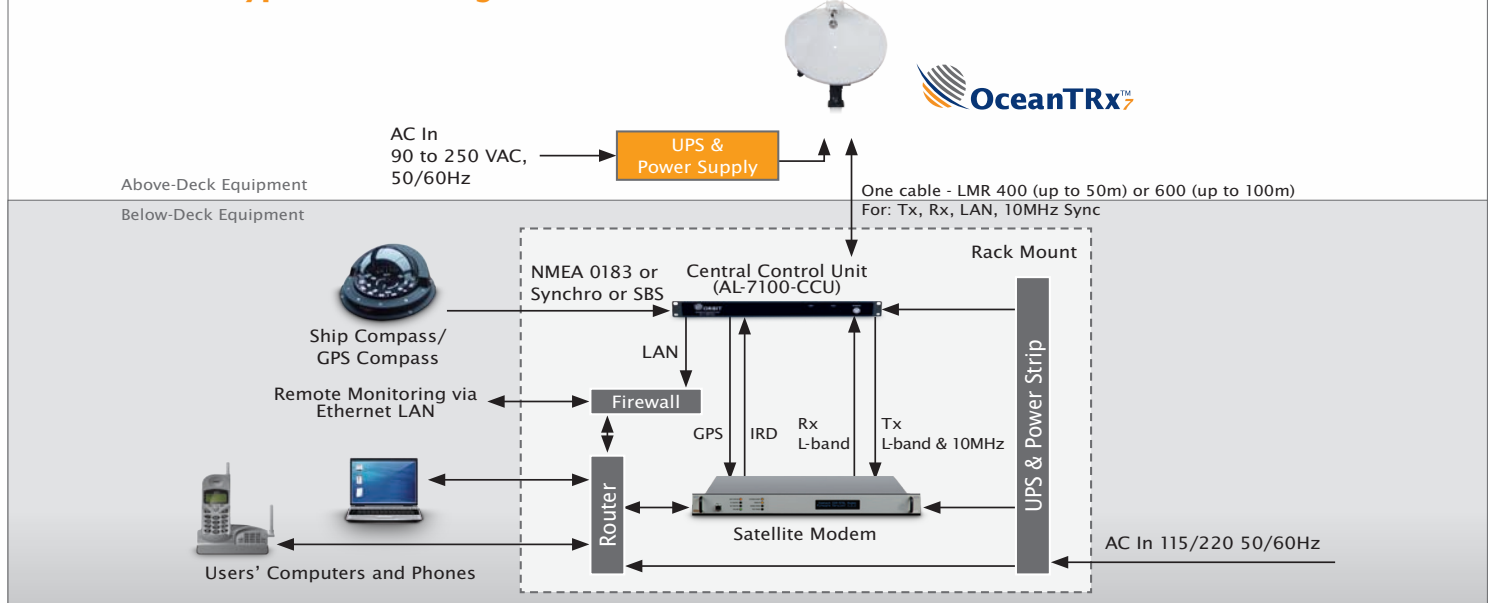# OceanTRx™ 7-300 and OceanTRx™ 7-500 Typical Features and Specifications

OceanTRx™7 – General Features

Antenna Type	Dual offset Gregorian	Modem Interface	L-Band
Antenna Size	2.2m (87")	System Weight (including radome, RF dependent)	< 590 kg (1,300 lb)
Radome Size	2.7m (106") D, 2.6m (102") H	Environmental Conditions Compliance	• Shock & Bump: MIL-STD 810F , MIL-STD-901D (Designed to Grade B), • Vibration:MIL-STD-167-1 (Mast Mounted) • 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: EN 60204-1; ISO 12100-2; EN 614-1; IEC 60945:2002 , RoHS compliant • EMC: Conducted & Radiated Emission Immunity; IEC 60945:2002; IEC 61000-4-2,3,4,5,6,11
Dynamic Accuracy	0.1° RMS		
Dynamics (Ship motion): Roll Pitch Yaw	30° @ 8 sec 15° @ 6 sec 80° @ 50 sec		
Range of Mechanical Pedestal Axes	Azimuth: Continuous Elevation: -30° to +120° Cross Elevation: -30° to +30°		
Ship Gyro Interface	NMEA 0183, Step by Step, Synchro		

	OceanTRx™ 7-300		OceanTRx™ 7-500	
	C-band	**Ku-band**	**Ku-band**	**Ka-band**
Operation Frequency	C-band Linear Tx: 5.850GHz – 6.725GHz Rx: 3.400GHz – 4.200GHz C-band Circular Tx: 5.850GHz – 6.425GHz Rx: 3.625GHz – 4.200GHz	Tx: 13.75-14.5GHz Rx: 10.95-12.75GHz	Tx: 13.75-14.5GHz Rx: 10.95-12.75GHz	Tx: 27.6-31.0 GHz Rx: 17.8-21.2 GHz Configuration dependent, Consult ORBIT
Antenna Polarity	Linear (V/H) or Circular (RH/LH) electrically switchable	Linear H/V	Linear H/V	Circular Polarity: Tx-RHCP/Rx-LHCP, or Rx-RHCP/Tx-LHCP, electrically selected
System G/T (Typical, complete system including radome)	17.9 dB/°K @ 3.950GHz (Clear sky, 30º elevation)	24 dB/K° @ 12.5GHz (Clear sky, 30° elevation)	25 dB/K° @ 12.5GHz (Clear sky, 30° elevation)	25 dB/K° @ 19.7 GHz (Clear sky, 30° elevation)
System EIRP (Typical, at mid range, including all losses)	57 dBW (With 100W BUC)	60 dBW (With 40W BUC)	61 dBW (With 40W BUC)	65 dBW (With 20W BUC)
Cross-Pol Discrimination (Tx)	Linear: 30dB Circular: 28 dB	30 dB	30dB	27dB
BUC Options	20W/40W/80W 100W/200W (Air conditioning recommended)	16W/25W/40W Other options available	16W/25W/40W Other options available	5W/10W/20W/40W
Power Requirements (Typical, single ADE/BDE ; Auto ranging input of 90-130VAC or 200-250VAC 50/60 Hz)	ADE: 750W (100W BUC) BDE: <100W RMS	ADE: 350W (40W BUC) BDE: <100W RMS	ADE: 350W (40W BUC) BDE: <100W RMS	ADE: 500W (20W BUC) BDE: <100W RMS

Patent pending: USPTO #13/026,255, USPTO #13/338,286. Specifications are subject to change without prior notice.

OceanTRx™ 7 Typical Block Diagram

AC In
90 to 250 VAC,
50/60Hz

UPS & Power Supply

Above-Deck Equipment

One cable - LMR 400 (up to 50m) or 600 (up to 100m)
For: Tx, Rx, LAN, 10MHz Sync

Below-Deck Equipment

NMEA 0183 or Synchro or SBS

Central Control Unit (AL-7100-CCU)

Rack Mount

Ship Compass/ GPS Compass

LAN

Remote Monitoring via Ethernet LAN

Firewall

GPS IRD Rx L-band Tx L-band & 10MHz

Router

UPS & Power Strip

Satellite Modem

Users' Computers and Phones

AC In 115/220 50/60Hz

OceanTRx™ 7-300
ANATEL
CERTIFICATE OF HOMOLOGATION
3379-11-7471

OceanTRx™ 7-300
EUTELSAT
17/10/2011
CHARACTERIZATION APPROVAL
STANDARD M

ORBIT

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