

O3bTrunk Dual Tracking Antenna Terminals

O3bTrunk customer terminals are sized to meet the customer's Service Data Rate (SDR) requirements and offers service availability targets of 100%. The O3bTrunk recommended terminals for each region are based on link budget calculations related to the customer's location. They are designed to work with existing VSAT modems and transceivers.



MEOLink IP Trunking Terminal

ViaSat's MEOLink IP trunking terminal enables emerging market telcos and ISPs to offer fiber-like performance for high-speed internet services over O3b's medium earth orbit (MEO) satellite constellation. In combination, the O3b satellites and the MEOLink terminal extend high speed internet access to rural markets over a cost effective satellite connection, making the Internet a truly global and universal experience.

O3b's MEO satellites will be deployed in a circular orbit along the equator at an altitude of 8000 km, less than one-fourth the altitude of geo-stationary satellites. This lower orbit substantially lowers costs while maintaining low-latency fiber-like connections. No other service provider has the combination of fiber-like connections with the global reach of the O3b network.

ViaSat's MEOLink terminal includes precision tracking antennas, a high-speed DVB-S2 modem, and an advanced uplink power control system. The system operations are coordinated with the fully automated MEOLink monitor and control system.

Efficient Terminal for Seamless Connection

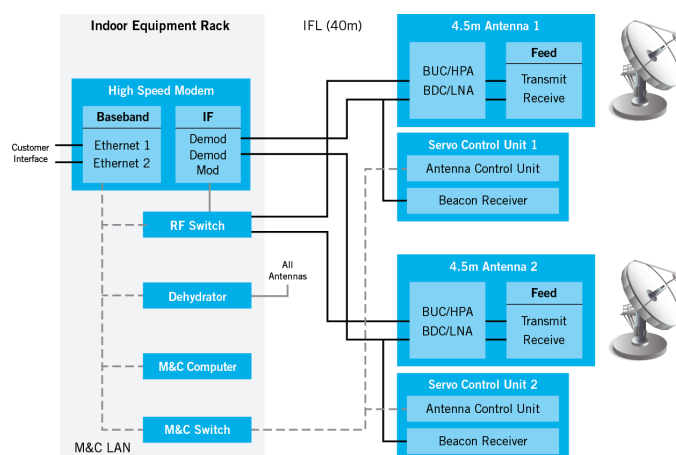
A pair of 4.5 meter precision tracking antennas (or 7.3 meter, depending on the location) each with a Ka-band high power amplifier (HPA), keep continuous contact with the satellite constellation. Continuous (no-break) service is maintained by automatically transferring active links between setting and rising satellites when both are in view.

The high-speed DVB-S2 modem is designed for symbol rates up to 180 Msps. Integrated Adaptive Coding & Modulation (ACM), with modulation densities up to 32APSK, enables satellite link speeds up to 810 Mbps in each direction. The modem incorporates special design features for the O3b network to seamlessly manage the make-before-break connections during satellite transfers without loss or repetition of data.

An advanced uplink power control system mitigates rain fade issues while minimizing the total power consumed by the terminal. Uplink power control and the modem ACM system work together to provide peak operating efficiency at the highest possible satellite link speeds.

Monitor and control system

A fully-automated monitor and control system manages system operations. The system allocates antenna and modem resources while managing constellation tracking of the MEO satellites. Under normal conditions, the monitor and control system receives and processes satellite configuration and position updates from the O3b network operations center for a completely hands-off, lights out operation.



Specifications

System

| | |
|---------------------|--|
| Availability | 0.9975 (0.9999 with optional spare antenna) |
| Handover | Make-Before-Break |
| Standards | CE (UL optional) |
| Components | 2 antenna systems 1 modem 1 indoor to antenna (IFL) cable kit, 40 m 1 indoor equipment kit which includes: – 1 monitor & control (M&C) computer – 1 M&C LAN switch – 1 RF switch – 1 redundant LNB power supply – 1 redundant dehydrator |

Antenna

| | |
|-------------------------|--|
| Aperture | 4.5m standard 7.3m optional |
| Configuration | Elevation over azimuth |
| Quantity | 2 per terminal |
| G/T | 4.5 m: 32 dB/K @ 20° elevation 7.3 m: 37 dB/K @ 15° elevation |
| EIRP | 4.5 m (20 W): 65 dBW 4.5 m (40 W): 68 dBW 4.5 m (500 W): 79 dBW 4.5 m (750 W): 80.6 dBW 7.3 m (500 W): 85.7 dBW 7.3 m (750 W): 87.3 dBW |
| Axial Ratio | 1.09:1/0.77 dB |
| Envelope | 1°< θ <48° = 32–25 log θ >48° = -10 dBi for 80% of all sidelobes |
| Tracking Error | ≤0.6 dB RMS uplink gain degradation |
| Tracking Method | Augmented program track via beacon monitoring |
| Controller Modes | Dual antenna, contingency single antenna |
| Ephemeris Format | NORAD two line elements (ASCII) |

Modem

| | |
|----------------------------|--|
| IF | 950–2450 MHz |
| Modulation | DVB-S2 (w/ACM and all standard modulation codes) |
| Symbol Rates | 10–180 million symbols per second |
| Interfaces | 4 x Gigabit Ethernet |
| Size | 1 RU |
| Electrical | |
| Uplink | 27.6–29.1 GHz |
| Downlink | 17.8–19.3 GHz |
| IF | 950–2450 MHz |
| Polarization | RHCP/LHCP selected at order |
| Group Delay | ≤ 2 ns over any 216 MHz channel |
| Phase Noise | IESS 308/309 |
| Frequency Stability | ±2 x 10 ⁻⁷ /day |
| LNB | Non-inverting, 1.5 GHz bandwidth |
| HPA | Linearized 500 W TWTA (optional 750W klystron HPA) |
| Indoor Mains | 120/230 VAC 1-phase, 50/60 Hz ±3 Hz, 3-wire |
| Outdoor Mains | 265/460 or 230/400 VAC 3-phase, 50/60 Hz ±3 Hz, 5-wire wye optional mains configurations available |

Environmental

| | |
|----------------|--|
| Indoor | 15°C–40°C 20–90% relative humidity, non-condensing |
| Outdoor | -20°C–48°C 0 to 100% relative humidity, condensing |
| Wind | Operational: 64 km/h gusting to 96 km/h Survival: 161 km/h in stow position |

MEOLink system options

The MEOLink system can be configured to meet specific regional or operational requirements.

7.3 meter Antennas — for higher two way link margins and link availability in high rain fade areas.

750W HPA — for higher one way link margins for moderate rain fade areas.

High Availability — additional hot spare antenna and modem to increase the hardware availability from 0.9975 to an impressive 0.9999.

Maintenance Plans — to keep your system in top operating condition.

Please consult our ViaSat application engineers to assist you in selecting the right system and options to meet your needs.



VIASAT, INC.
1725 Breckinridge Plaza
Duluth, GA 30096 USA
TEL +1 678.924.2631
EMAIL iptrunking@viasat.com
www.viasat.com

03b NETWORKS LIMITED
St John's Manor Offices,
Le Neuf Chemin, St John,
Jersey, JE3 4EH Channel Islands
TEL +44.1534.865.000
FAX +44.1534.862.301
www.o3bnetworks.com