



IP TRUNKING TERMINAL

A pair of 4.5 meter high-precision tracking antennas, each with a 500 W 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 32 APSK, 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.

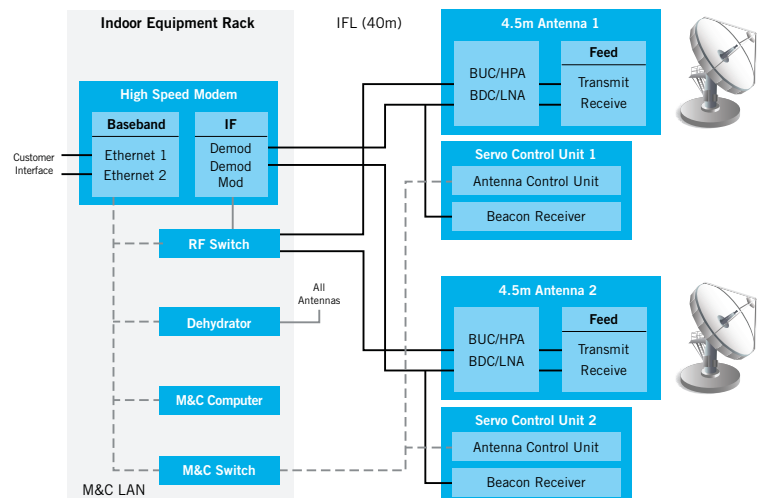
Viasat's MEOLink IP trunking terminal enables emerging market telcos and ISPs to offer fiber-like performance for high-speed internet services over O3b's medium earth orbit (MEO) satellite constellation. In combination, the O3b satellites and the MEOLink terminal extend high-speed internet access to 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.

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.



MEOLink IP Trunking Terminal

SPECIFICATIONS

SYSTEM

Availability	0.9975 (0.9999 with optional spare antenna)
Handover	Make-before-break
Standards	CE (UL optional)
Components	<ul style="list-style-type: none">» 2 antenna systems» 1 modem» 1 indoor to antenna (IFL) cable kit, 40 m» 1 indoor equipment kit which includes:<ul style="list-style-type: none">• 1 monitor & control (M&C) computer• 1 M&C LAN switch• 1 RF switch• 1 redundant LNB power supply• 1 redundant dehydrator

ANTENNA

Aperture	4.5 meter standard/7.3 meter optional
Configuration	Elevation over azimuth
Quantity	2 per terminal
G/T	
» 4.5 meter	32 dB/K @ 20° elevation
» 7.3 meter	37 dB/K @ 15° elevation
EIRP	
» 4.5 meter (500 W)	79 dBW
» 4.5 meter (750 W)	80.6 dBW
» 7.3 meter (500 W)	85.7 dBW
» 7.3 meter (750 W)	87.3 dBW
Axial Ratio	1.09:1/0.77 dB
Envelope	<ul style="list-style-type: none">» $1^\circ < \theta < 48^\circ = 32-25 \log \theta$» $>48^\circ = -10 \text{ dBi}$ for 80% of all sidelobes
Tracking Error	$\leq 0.6 \text{ dB RMS}$ 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 to 2450 MHz
Modulation	DVB-S2 (w/ACM and all standard modulation codes)
Symbol Rates	10 to 180 MSym/s
Interfaces	4x Gigabit Ethernet
Size	1 RU

ELECTRICAL

Uplink	27.6 to 29.1 GHz
Downlink	17.8 to 19.3 GHz
IF	950 to 2450 MHz
Polarization	RHCP/LHCP selected at order
Group Delay	$\leq 2 \text{ ns}$ over any 216 MHz channel
Phase Noise	IESS 308/309
Frequency Stability	$\pm 2 \times 10^{-7}$ /day
LNB	Non-inverting, 1.5 GHz bandwidth
HPA	Linearized 500 W TWTA (optional 750 W klystron HPA)
Indoor Mains	120/230 VAC 1-phase, 50/60 Hz $\pm 3 \text{ Hz}$, 3-wire
Outdoor Mains	<ul style="list-style-type: none">» 265/460 or 230/400 VAC 3-phase» 50/60 Hz $\pm 3 \text{ Hz}$» 5-wire wye optional mains configurations available

ENVIRONMENTAL

Indoor	<ul style="list-style-type: none">» 15° to 40° C» 20% to 90% relative humidity, non-condensing
Outdoor	<ul style="list-style-type: none">» -20° to 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.
- » **750 W 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.

CONTACT



VIASAT INC.
1725 Breckinridge Plaza
Duluth, GA 30096

TEL 888 842 7281 (US Toll Free) or +1 760 476 4755
EMAIL insidesales@viasat.com
WEB www.viasat.com

O3B NETWORKS LIMITED
St John's Manor Offices, Le Neuf Chemin
St John, Jersey, JE34EH, Channel Islands

TEL +44 1534 865 000
FAX +44 1534 862 301
WEB www.o3bnetworks.com