LINKSTAR
IS YOUR WAY
TO REACH MORE
OF THE WORLD
WITH MULTIMEDIA
BROADBAND

LinkStar-At-A-Glance

- DVB-RCS compliant (optional)

- Multimedia, broadband connections

- Hub IP router supports RIP, IGMP, CRTP, UDP, TCP

- Up to 58 Mbit/s download via DVB-MPE forward channel

- Standard DVB-RCS return channel up to 1.67 Mbit/s, 3.33 Mbit/s optional

- Automatic bandwidth allocation

- Programmable, Multi-queue Quality of Service

- Up to 10,000 remotes per hub

- Web-based network management

- Ka-band capable

- Slotted Aloha

- User groups

- Multiple DVB uplink/multiple transponder/multiple satellite operation

- IPSec transparent with control plane security

- IP header compression

- IP QoS with voice prioritization

- VLAN tagging

- DHCP relay

- HTTP Acceleration

LinkStarRCSplus
Broadband VSAT System

LinkStar® is a two-way, bandwidth-on-demand broadband VSAT system designed around DVB-RCS for service providers, ISPs, and corporate networks that brings more efficiency and higher data rates to the market than other TDMA systems. LinkStar combines broadband access and a high-speed return channel to satisfy bandwidth-intensive applications using IP data over any fixed satellite.

Since its introduction, LinkStar VSATs have been built on a foundation of open standard DVB technology, including a DVB-S forward link and DVB-RCS return. LinkStarRCSplus updates LinkStar to full compliance with the developing DVB-RCS specification, but also offers you a full range of features and custom applications available only on the LinkStar platform. All LinkStar terminals are interoperable, under the control of a single Network Control Center (NCC).

LinkStar features a total capacity of nearly 60 Mbit/s on the forward channel. Return channels to the hub operate at speeds up to 1.67 Mbit/s, with an optional upgrade to 3.33 Mbit/s. With this return channel capacity, remote sites can be server locations, content providers, multimedia sources, video teleconferencing participants, and corporate headquarters.

Dynamic Bandwidth Allocation, combined with guaranteed Quality of Service (QoS) and TCP acceleration features, makes LinkStar more efficient and faster than other TDMA systems. The combination automatically increases the speed of the return channel to give you the throughput you need. ViaSat is always working to bring you the highest return channel data rates in the industry, so even large multimedia files are quickly transmitted.

- **Bandwidth on Demand** (BOD) allows user to seamlessly increase bandwidth as it is needed, as long as it's needed. BOD is ideal for VOIP applications as well as infrequent large file transfers.

- **Committed Information Rate** (CIR) mode provides users with near instantaneous availability of all the bandwidth in their SLA, ideal for guaranteed Quality of Service (QoS) applications.

- **CIR Reallocation** offers CIR when the user needs it, but if its not used, it becomes available to the entire network. Allows operators to fully utilize their bandwidth resources

- **Slotted Aloha** enables low bandwidth applications to have immediate access to the network. This powerful feature minimizes latency and is particularly suited for transactional applications such as lotteries, point-of-sale (POS), and automated teller machines (ATMs).

Turbo Coding and Optimized Spectral Shaping on the return channels enable you to use your satellite bandwidth more efficiently and further increase return channel throughput.

DVB-based Architecture enables service providers and satellite operators worldwide to build open-standard networks for IP data, Internet access, video streaming, telemedicine, voice over IP, or distance learning. For operators that require standardization, the LinkStar network offers a DVB-RCS compliant return channel with a simple software download.

Web-based Network Management gives you configuration, control, and management of your VSAT network using a standard browser. The NCC provides additional management through traffic statistics, call detail records, and an SNMP interface.

Reduced Operating Costs Remote Terminal software download feature upgrades networks without site visits, including full or partial conversion of the network to DVB-RCS.

Scalability, with each Regional NCC (RNCC) operating up to 10,000 sites, and a single NCC controlling up to 10 RNCCs for a total of up to 100,000 network nodes. LinkStar is your way to reach more of the world with multimedia broadband.

User Groups enable you to logically group remote terminals to apply common operating parameters to members of the group. This powerful capability is ideally suited to the network operator managing multiple customers or classes of access.

IP Header Compression reduces the bandwidth required for a voice call by eliminating extraneous and redundant protocol information.

Maritime Operation for installation on moving platforms. Though originally designed for the maritime market, this feature adapts to any moving platform.

Control Channel Encryption using the LinkStar Control Channel Security Architecture (LCCSA), provides secure communications of the LinkStar control channel.

Six-level, two-way Quality of Service (QoS) offers you six queues at the scheduler level on each remote terminal. You get a finer prioritization of user traffic based on profiles defined using the IP QoS feature.

DHCP Relay and VLAN Tagging enable service providers to offer VPN services to multiple customers from a single terminal. LinkStar networks support Multi-protocol Label Switching (MPLS)-based IP Virtual Private Networks (VPNs). The network is able to provide end-to-end separation of customer traffic and a dynamic addressing scheme for the different VPN hosts behind remote terminals.

Optional HTTP Acceleration boosts the speed of your customers' web surfing experience. Using a pre-fetch proxy, LinkStar significantly reduces the time a user waits for HTML objects to appear on screen.

Pointing Tool designed specifically to facilitate the installation of the your remote terminals. Our proprietary tool interacts with the LinkStar software to provide fast, easy, and accurate pointing of the antenna.

SATELLITE IP TERMINAL

RETURN CHANNEL
Format: MF-TDMA

					OPTIONAL
Burst Rates (ksym/s)	156	312	625	1250	2500
Bit Rates (rate 2/3 FEC, kbits/s)	208	416	833	1667	3333
Channel Spacing (kHz)	200	400	800	1600	3200

Transmit IF Frequency: 950 to 1450 MHz
Turbo Coding: DVB-RCS compliant
Modulation: QPSK

OUTBOUND CHANNEL (FROM HUB)
Format:
   DVB/MPEG-2 transport stream (ISO/IEC 13818)
   DVB-MPE (Multi-protocol Encapsulation) for IP data
   PCR insertion
Symbol Rates: 2.5 to 36 Msym/s
FEC: DVB-compliant R/S (204, 188) and convolutional
   (R=1/2, 2/3, 3/4, 5/6, 7/8)
BER: Quasi-error free per DVB standard
Modulation: QPSK
Receive IF Frequency: 950 to 1750 MHz

PHYSICAL INTERFACES
L-band Transmit and Receive: (2) Type-F, 75 ohm
Network: (1) 10/100BaseT Ethernet (RJ-45)

RF
Antenna Diameters: 0.96, 1.2, 1.8, 2.4 M
ODU Power:
   1- and 2-watt Ku-band, 4- and 5-watt C-band
ODU Operating Temperature: -40°C to 55°C
LNB: Voltage Controlled and 22kHz Tone Controlled
   LNB switching

RETURN CHANNEL SATELLITE TERMINAL (RCST)

MECHANICAL/ENVIRONMENTAL
Dimensions: 1U high, 13" W, 8" D
Power: 110/220 VAC, auto-sensing, auto-ranging
Temperature:
   0° to 40°C operating; -20° to 70°C storage
Humidity:
   95% relative humidity non-condensing at 0° to 40°C
   operating; 90% relative humidity non-condensing at
   65°C storage

NETWORK MANAGEMENT AND CONTROL
Network Management System (NMS):
   Java Web-based, standard PC
Network Control Center (NCC):
   SUN Solaris Workstation; SNMP agent

SYSTEM

PERFORMANCE
TCP Acceleration: 10 Mbit/s throughput
Scalability:
   10,000 nodes with single Hub/NCC; 100,000
   nodes with multiple Hubs/NCC
Protocols:
   TCP/IP, UDP/IP, IGMP, RIP 1&2, IP QoS support

COMPLIANCE
Safety: UL/cUL 60950; CE (EN60950)
EMI/EMC:
   FCC part 15 Class B; VCCI Class B;
   AS/NZS3548 Class B; BSMI; CE (EN 301 489-12,
   EN 55022, EN 55024, EN 61000-3-2,
   EN 61000-3-3
RF Spectrum:
   CE (EN 301 428, EN 301 443);
   ANATEL

*Specifications subject to change without notice.

SATCOM SERVICES

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