



Skystar Advantage®

Satellite-Based VSAT Network for Data Communication

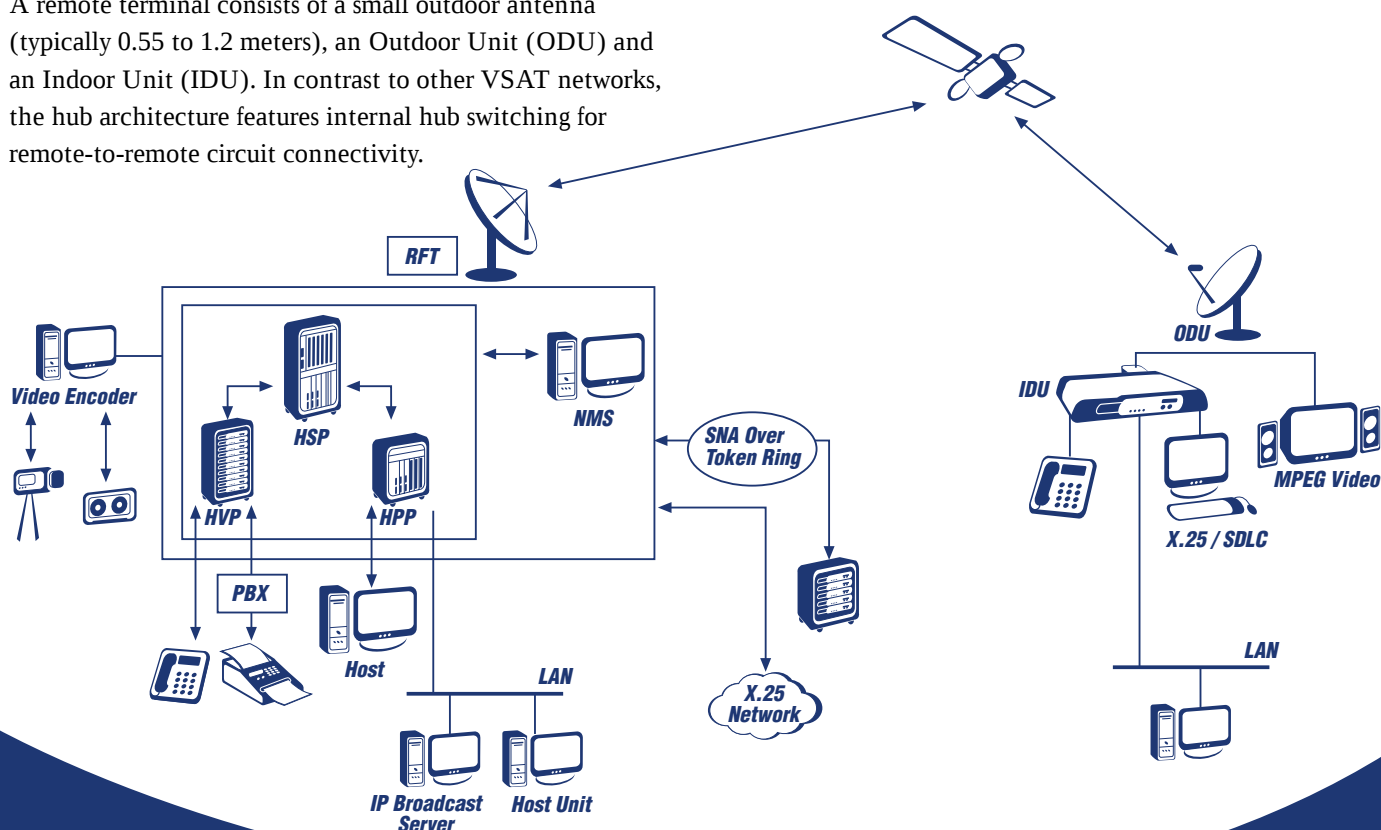
Skystar Advantage® is a private VSAT network designed for data, multimedia and voice applications, providing highly reliable communication between a central hub and almost any number – tens or thousands – of geographically dispersed sites.

Skystar Advantage® is a versatile and modular VSAT product that integrates the features of several different applications into a single platform. The same network can be used for interactive data and voice, as well as for multicasting multimedia over IP. Its modular 3-slot plug-in card architecture enables customization for each remote site. A unique patented satellite access scheme, ASIC-based receiver, powerful integrated communications controller, small antenna and modular design result in outstanding network performance and make the system reliable, efficient and affordable.



Architecture

The Skystar Advantage® network consists of a hub, satellite channel and remote VSATs. The hub consists of an RF terminal (RFT) and baseband equipment. The baseband includes a Hub Satellite Processor (HSP) to control the satellite transmission, a Hub Protocol Processor (HPP) to interface with the customer's data equipment, an optional Hub Voice Processor (HVP) for voice interfaces, and some optional multimedia servers. An advanced, user-friendly Network Management System (NMS) provides centralized monitoring and control, statistics, alarms and events, network configuration and report generation. A remote terminal consists of a small outdoor antenna (typically 0.55 to 1.2 meters), an Outdoor Unit (ODU) and an Indoor Unit (IDU). In contrast to other VSAT networks, the hub architecture features internal hub switching for remote-to-remote circuit connectivity.



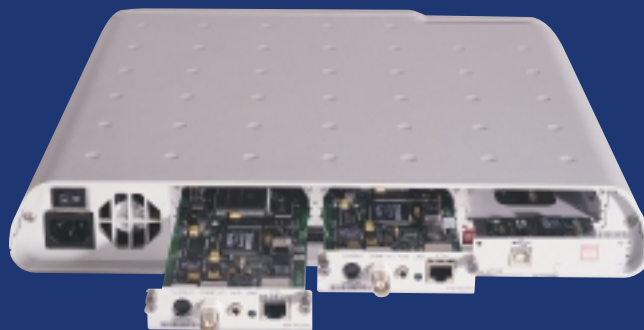
Flexible Modular VSAT

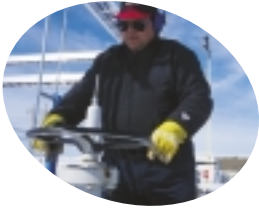
Skystar Advantage® offers intrinsic modular flexibility. The IDU comes with on-board LAN and two serial ports and three slots for plug-in cards. This design enables field upgradeability by the addition of optional plug-and-play like cards to support a variety of interfaces and applications. At each remote site the plug-in cards are simply inserted into slots in the VSAT back panel, without having to remove the cover. In a dynamic high-tech environment, application requirements change

Satellite Access

Skystar Advantage® uses a proprietary two-dimensional access scheme. This enables the use of low-cost ODU hardware, saves on space segment and allows the VSAT network to handle momentary peak traffic loads without any significant degradation in response time. The network is immune to outages caused by frequency interference and offers intrinsic security capabilities. The unique FTDMA scheme provides no back-off in time for retransmissions and consistent utilization of the entire bandwidth by all remote sites. The access scheme provides superior network throughput stability and load balancing.

rapidly. The concept enables affordable and quickly implemented solutions by adding new plug-in cards as new applications are required.





SCADA



Banking



Retail



Multimedia

Applications

- PoS transactions
- Credit/debit/check authorization
- Inventory control
- Banking and ATM transactions
- Reservation systems
- Lottery transactions
- SCADA
- Internet/Intranet access
- Interactive Distance Learning/training
- Multimedia (video and audio) Multicast
- Reliable software distribution
- Stock market and financial transactions
- Voice/Fax
- Remote video monitoring

Features

Concurrent Protocol Support

Skystar Advantage® can be configured to implement different protocols concurrently. It can simultaneously support TCP/IP including IP routing, SDLC, X.25, voice, MPEG1 and MPEG2 video and more.

Multicast Service

IP multicast delivers information to a large number of recipients simultaneously. Implementing IP multicast via satellite as an added value overlay to interactive data networks provides a single-tier architecture for multicast applications. Multicast applications include the transmission of live video/audio streams of news and entertainment, multimedia corporate training, database replication, software update distribution and dissemination of financial data. Skystar Advantage®'s powerful outbound capability, up to 8 Mbps per carrier, enables simultaneous use of multiple applications.

Integrated Voice / Fax Capabilities

Plug-in voice cards at the remote VSATs and dedicated interfaces at the hub facilitate transparent telephone line services to VSAT users.

Efficient Space Segment Utilization

Superior utilization of space segment allows for high network throughput per bandwidth. MSK modulation results in efficient inbound channel spacing. Low satellite power utilization is achieved by outbound concatenated coding.

Inherent IP Capabilities

Gilat's IP technologies serve to increase the network efficiency and decrease the latency over the satellite. The TCP Accelerator saves bandwidth and reduces latency by using local acknowledgements, a piggyback acknowledgement mechanism and sophisticated message windows. The Internet Page Accelerator™ (IPA) significantly improves the performance of Web browsing and Web applications by reducing the number of commands needed to download a Web page. The proxy IPA hub server gets the entire page and pushes it to the VSAT. Both hub and VSAT functions as routers, supporting static and dynamic routing, all classes of addressing, subnetting, IGMP, NAT and more.

Superior Reliability

- Market leader in MTBF
- Dial backup support
- Unique immunity to carrier interference and data interception
- Software stored in FLASH memory for improved performance

Rapid Deployment

Compact design enables quick installation of individual sites and rapid deployment of large networks.

Low Power Consumption

With less than 25w, Skystar Advantage® offers substantial savings with regards to UPS, battery or solar panel cost. This minimal power consumption makes it ideal for SCADA and any other outdoor use.



Technical Specifications

Network	Architecture	Interactive, star configuration	
	Capacity	Up to 34,000 VSATs	
	Protocol Support	TCP/IP, X.25, Async (X.3/X.28/X.29), SDLC and more	
	IP Functionalities	TCP, UDP, RIP V1, RIP V2, IRDP, ARP, ICMP, Classes (A, B, C, D), Subnetting and classless addressing, UDP, IGMP	
	RF Frequency	Ku band, Ext. Ku-band, C-band, Ext. C-band	
Hub Station	User Ports	Interface:	RS-232, RS-422, V.35, Token Ring or Ethernet
		Information Bit Rate:	110 bps to 512 kbps (on serial ports), DCE or DTE
		Data Format:	Synchronous or asynchronous
	Outbound Carrier	Statistical multiplexing	
		No. of Carriers:	Configurable
		Bit Rate:	64 kbps to 8 Mbps, up to 24 Mbps aggregate
	BER Performance	Error Connection:	Concatenated Viterbi and Reed Solomon
			Better than 10^{-12}
	Modulator	Modulation Scheme:	BPSK or QPSK
Remote Terminal	Inbound Carrier		Proprietary combined TDMA and FDMA (FTDMA)
		Bit Rate:	9.6, 19.2, 38.4, 76.8 and 153.6 kbps, software configurable. Optional dual bit rate
	Outdoor Unit	Modulation Scheme	MSK
		Antenna Size (Typical):	Ku-band: 0.55 to 1.20m, C-band: 1.80m
		SSPA Power:	Ku-band 0.5, 1 and 2 watt
			Extended Ku-band 1 watt
			C, Extended C-band 2 watt
		Up-Converter:	Compact
	Indoor Unit:	Operating Temperature:	-40° to +60°C
		Humidity:	Up to 100%
		Basic Unit Ports:	2 serial ports plus Ethernet
		Expansion Cards:	4 serial ports, Token Ring, voice, video, USB and customized cards, field upgradeable
		Port Information Bit Rate:	50 bps to 128 kbps (on serial ports), DCE or DTE
		Interface:	Serial: RS-232, X.21
			Token Ring: UTP RJ45, STP DB9
			Ethernet: 10BaseT
			Voice: 2-wire FXS RJ11
	Operating Voltage:	Video:	BNC for composite video, S-video (Mini DIN)
		Audio:	3.5 mm mini jack
		AC:	Autorange 100-240V
		DC (optional):	24V - 48V, 12V
	Power Consumption:		Less than 25W, including ODU
	Dimensions:		6 cm (h) x 40 cm (w) x 34 cm (d)
	Weight:		3.9 kg
	Operating Temperature:		-10° to 60°C (weatherized version optional)
	Humidity:		Up to 95%, non-condensing

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Skystar Advantage® expansion cards