

SATPATH SkySwitch™

SkyMesh™ 2/4100 Series Satellite Router Packet Switching VSAT Network for Total Telecom Services Featuring 98% Channel Efficiency in Network Operation

Applications:

- Mesh WAN Connections
- MCPC Videoconference
- Remote Database Replication
- Internet Access, DVB-SCPC
- SCPC P-to-P and P-to-MP
- MPLS Connections
- COTM (On-the-Move) and COTP
- Emergency Response

Advantages:

- Mesh/Multi-Star Connection
- Lower RFT (ODU & ANT.) Cost
- Highest Channel Efficiency
- Fast Response Time

Features:

- Multiple Channels Modem
- Data Rates up to 13.8 Mbps (16QAM)
- 5% Roll-Off Factor
- Standalone MCPC Mode
- Mesh Network Mode
- Web GUI with Traffic Statistic
- Satellite IP Router
- Automatic Channel Switching
- Multicasting
- Traffic Filtering
- Connectivity Management
- Adaptive Bandwidth On Demand (ABOD)
- Automatic Tx Level Control



SkyMesh™ series smart router terminals feature multiple-channels in a single box to provide **Packet Switching Multiple Access (PSMA)** with on-demand connections for star, mesh, and multi-star networks. SkySwitch® Network structure is user programmable that supports multiple topologies within a single network. Network topology can be changed on the fly to meet rapid changing mission requirements in emergency. SkyMesh™ smart terminals deliver all user traffic via single-hop link to their final destinations.

SkyMesh™ 2100 & 4100 smart terminals offer high performance, ease of use, fast acquisition, IP routing, wide range of data rates from 8 Kbps to 13.8 Mbps using a single carrier per site. Most importantly, its near 100% channel efficiency is the highest among competition without multiplexing overhead for multiple channels communications. The low latency performance results faster carrier acquisition for shorter response time in real-time applications. For lower cost and better performance, the SkySwitch® is a better alternative to connection-oriented mesh TDMA terminals. These advantages minimize OpEx of SkySwitch® VSAT network.

When the terminal operates in **Network Mode**, it functions as a multi-channel smart IP data router in a mesh network. When the terminal operates in **Standalone Mode**, it functions as a high performance and high rate, pre-assigned SCPC/MCPC digital modem with embedded IP router.

Using SkyMesh™ smart terminals in Standalone Mode can provide pre-assigned mesh connections among SkyMesh™ remotes. Application in MCPC mesh connectivity is particularly suitable for voice and multicasting video connections. Users of standalone SkyMesh™ smart terminals have the option to upgrade the fixed connections to an intelligent packet switching network with on-demand PSMA and BOD (Bandwidth on Demand), by adding SkySwitch® NMCS (Network Management and Control Subsystem).

When used in **Networking Mode**, SkyMesh™ smart terminals feature high performance two-way simultaneous links to multiple sites from network hub or remote **control site** at corporate user headquarter. The ability to connect to two or more central sites allows

SkyMesh™ 2/4100 Terminal Specifications

Service Applications

- High performance, broadband IP, multiple 2-way services for mesh and multi-STAR networks VSAT links
- Multi-channels: 2 and 4 channels for 2100/4100, expandable to 6 and 8 channels; or Receive-Only channels

Access Methodology

- On-Demand Composite TDM Outbound Carrier using Packet Switching Multiple Access (PSMA)
- Contention Access Slotted Aloha Inbound (CSC-IB) to initiate DAMA activation
- SCPC / MCPC Inbound Carrier for IP traffic services Bandwidth-On-Demand (BOD) automatic Inbound Carrier rate adaptability to match real time IP traffic demands

IP Features and Routing Function

- Intranet/Internet, Multicast, TCP/HTTP Acceleration
- L-3 Routing, L-2 Bridging, DNS Caching
- Standard & Customized QoS traffic Prioritization Protocols: TCP UDP RIP ARP DHCP ICMP IGMP Telnet PPP FTP HTTP SMTP SNMP DSCP

Mechanical & Environmental

- RJ-45, 10/100 Base T Ethernet Interface
- RS-232 Asynchronous Serial Interface to ACU
- AC Power, IEC-320 Interface 110-240 VAC 47-63 Hertz, 120 watts, 24VDC @ 3.5A
- Dimensions: 43 x 250 x 310 mm Desktop/Rack Mount Unit
- Weight: 2.2 Kg
- Operational: 0 to +45 degrees Centigrade
- Humidity: Up to 95 % non-condensing
- Storage: -30 to +70 degrees Centigrade

traffic being transmitted from corporate branches to headquarters directly while bypassing hub. The smart terminal validates connectivity and does traffic filtering. SkySwitch® smart terminal carrier is sized to support the traffic of a single site and not shared. Comparing with TDMA carrier, SkySwitch's smaller carrier uses smaller antenna and ODU.

When used in **DVB-SCPC Mode**, SkyMesh™ provides highly efficient SCPC/MCPC return channel for mesh connection in addition to broadband access. The combined benefit of DVB-S/S2 with SkySwitch® MCPC return channel results the lowest possible operating cost for broadband network operator.

Outbound Carrier

- Proprietary TDM with PSMA, or SCPC/MCPC
- BPSK/QPSK/8PSK/16QAM Modulation
- Turbo Product Code FEC, 0.72, 0.79, 0.87 Rates, Approx.
- Carrier Data Rate 8 Kbps to 13.8 Mbps, 1.05, 1.10, 1.20 or 1.30 Symbol Rate Carrier Spacing Options

Inbound Carrier

- Shared Slotted Aloha at 24/48 Kbps for initial network entry and DAMA
- SCPC / MCPC with BOD for IP traffic
- BPSK/QPSK/8PSK/16QAM Modulation
- Turbo Product Code FEC, 0.72, 0.79, 0.87 Rates, Approx.
- Carrier Data Rate 8 Kbps to 13.8 Mbps
- Inbound Carrier rate adaptability to match actual site traffic Real Time Demand, 1.05, 1.10, 1.20 or 1.30 Symbol Rate Carrier Spacing Options

ODU Interface

- Transmit: 950-1850 MHz L-band with 2.5 KHz steps; +24 VDC @ 2.7A and 10 MHz Reference @ 5 dBm, Type F(f) Coaxial connector, 75 ohms, Level: -45 to -0 dBm in 0.5 dB steps; optional IF 70 +/- 18MHz interface BNC 50 ohm
- Receive: 950-1850 MHz L-band with 2.5 KHz steps; +24 VDC @ 0.3A and 10 MHz Reference @ 5 dBm, Type F(f) Coaxial connector, 75 ohms, Level: -75 to -35 dBm desired carrier; optional 70 +/- 18MHz interface BNC 50 ohm

Options

- LDPC Code FEC, 1/2, 2/3, 3/4, 4/5, 8/9, up to 22Mbps
- AES Encryption
- FSK Smart ODU M&C, High Stability Clock

Certification

- 47 CFR FCC Part 15, Subpart B; Canada ICES-003, issue 4; CE EN-55022 Class A, EN 61000-3-2, EN-61000-3-3, EN-55024, EN-61000-4-3/5/8.

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