

SatExpander

Xnet

Leading-Edge Satellite Hub System

PRODUCT SHEET

INTEGRATED HUB FOR MULTIPLE APPLICATIONS

SatExpander Xnet is the ideal choice for multi-application satellite networks requiring high performance connectivity. Presenting combined Point-to-Point and Point-to-Multi-Point connectivity and encompassing video and data delivery, SatExpander Xnet addresses multiple markets including enterprise, backhaul & trunking, government & defense, aero & maritime, delivering highly integrated, optimized, and efficient hub solution.

HIGH PERFORMANCE

Designed to deliver highest levels of efficiency and resiliency, SatExpander Xnet presents comprehensive set of capabilities and features. Enabling data connectivity of up to 425Mbps per modem, SatExpander Xnet connects multiple remote modems, supporting very high aggregated inbound data rate. The most bandwidth-efficient waveform, SatExpander NS4™, is used for the inbound carriers, providing very high-performance transmission and space segment efficiency as well as high robustness and resiliency. SatExpander NS4™ waveform is also supported for the outbound carrier, as well as standard DVB-S2 and DVB-S2X.

DYNAMIC RESOURCE MANAGEMENT (Dynamix)

Fast, flexible, and uncompromising, SatExpander Dynamix provides dynamic allocation of network resources in MCPC / Point-to-Multi-Point networks (Dynamic SCPC). Dynamix optimizes and maximizes performance and usage of inbound carriers while meeting the SLA of each remote modem. Managing the network resources, Dynamix continuously monitors network traffic, loads, policies, and configuration, and automatically assigns bandwidth, power, modulation, and code rate to each modem. Offering multiple modes of operation, comprehensive configuration, and high granularity of allocated resources, Dynamix provides highest flexibility and responsiveness, delivering superior Quality of Service (QoS) and Quality of Experience (QoE).

HIGH SCALABILITY

Designed to support the growing needs of hub network operators, SatExpander Xnet provides high efficiency and flexibility with a dense and scalable architecture. NSatExpander Xnet features multiple connectivity and capacity options, allowing for modular design and configuration according to network resources and needs.

HIGHLIGHTS

- Compact and flexible hub for data intensive applications
- High performance and efficiency with SatExpander NS4™ technology
- Advanced dynamic resource management with SatExpander Dynamix engine
- High density design supporting up to 250 remotes in a single cluster
- High flexibility, scalability and redundancy options
- Up to 500Mbps upload speed



HIGH DENSITY

SatExpander Xnet features high density architecture, utilizing compact chassis to support multiple remote modems. Multiple receive and transmit modules are supported and can be further aggregated to cater to any network size. The advanced high-density design minimizes rack space and power as well as eases deployment and operation.

HIGH AVAILABILITY

SatExpander Xnet supports 1:1 and 1:N inbound redundancy as well 1:1 outbound redundancy with automatic failover, ensuring very high system availability. Integrated redundant power supply and RF redundancy switch enable hot standby redundancy, guaranteeing high system reliability.

Xnet HUB ARCHITECTURE

SatExpander Xnet, a new take on ground segment architecture for satellite communications, features the latest in Software Defined Networking (SDN). Built on off-the-shelf servers with modular architecture and carrier grade management system, SatExpander Xnet maximizes network flexibility and scalability, adapting to any network architecture and allowing future upgrades and expansions.

SatExpander Xnet hub is comprised of the following server-based modules:

HMM - HUB MODULATOR



- Server-based technology
- From 100Ksps to 110Msps
- From 50Kbps to 500Mbps
- Single Carrier per Modulator
- ACM per remote operation
- 1:1 redundancy through LAN
- SMA 50 Ohm RF output

HRM - MULTI RECEIVER HUB



- Server-based technology
- 8 satellite receivers
- SatExpander NS4™ return technology
- Up to 80Msps / 425Mbps per receiver
- Up to 3.4Gbps throughput per unit
- SCPC and Dynamic SCPC support per receiver/remote
- 1:N redundancy through LAN
- 8 x F-type 75 Ohm input interfaces

SatExpander NMS



- Carrier-grade open NMS platform
- System monitoring, configuration and reporting
- Satellite bandwidth management and performance analysis
- Maps support

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SATELLITE MODEMS

SatExpander versatile satellite modems, along with SatExpander Xnet hub system, provides high performance solutions for a wide range of market and application requirements.

All modems share a wide range of key features while offering diverse capacity and networking options.

Key common features:

- SatExpander NS4™ technology
- Integrated QoS management
- ACM – Adaptive Coding & Modulation
- AUPC – Automatic Uplink Power Control
- Optional AES-256 bit link encryption
- 1:1 Redundancy Supported
- AC and DC power supply

SE330 SATELLITE MODEM



- Up to 300Mbps aggregated
- Integrated 4-port GbE LAN switch
- Open AMIP support
- Integrated BUC power supply

SE350 SATELLITE MODEM



- Up to 1Gbps aggregated
- Integrated 4-port GbE LAN switch
- Open AMIP support
- Integrated BUC power supply
- Embedded acceleration and optimization

SE3000 SATELLITE MODEM



- Up to 850Mbps aggregated
- Integrated Gbe LAN port
- Front panel control

TECHNICAL SPECIFICATIONS

GENERAL

Frequencies: L, C, X, KU, KA
Topology:
Star (PTMP), SCPC, Managed SCPC,
Distributed

FORWARD CARRIER

NOVELSAT NS4™

Modulation (FEC Granularity):
QPSK (17), 8PSK (15), 16APSK (15),
32APSK (15), 64APSK (8)
Roll-Off:
1.02, 1.05, 1.1, 1.15, 1.20, 1.25, 1.35
Coding: LDPC

DVB-S2/S2X

Carrier bandwidth:
Up to 110Msps (500Mbps)
Modulation (FEC Granularity):**
QPSK (14), 8APSK (2), 8PSK (9), 16APSK
(19), 32APSK (9), 64APSK (5)
Roll-Off: 1.05, 1.1, 1.15, 1.20, 1.25, 1.35
Coding: LDPC

RETURN CARRIER

DYNAMIX NOVELSAT NS4™

Carrier bandwidth:
Up to 80Msps / 425Mbps
Modulation (FEC Granularity):
QPSK (17), 8PSK (15), 16APSK (15),
32APSK (15), 64APSK (8)
Roll-Off:
1.02, 1.05, 1.1, 1.15, 1.20, 1.25, 1.35
Coding: LDPC

INTERFACES

RF TX & RX
L-Band: 950-2150 Mhz

USER DATA & MANAGEMENT PORTS
GbE 10/100/1000
SFP

FEATURES

RF:
Interference/jamming resiliency and
mitigation (higher throughput over
equivalent SNR of DVB-S2X)
IP:
IPV4 Layer 3 Router Mode, Transparent
Layer 2 (optional), TCP, UDP, ICMP, DiffServ,
SNMPv2/v3
Protocol Enhancements:
NSPE2 (IP encapsulation)
Optional Traffic Acceleration and
optimization (TCP, HTTP, GTP, GRE)
QOS:
Diffserv, CIR, MIR
Security:
AES 256-bit encryption
Double GPG (RSA-2048) encryption of
AES keys
Automatic dynamic key generation*
OTA key distribution and management

MANAGEMENT

System: Centralized NovelNet NMS
GUI Interface: Web based (HTTP / HTTPS)
CLI: Telnet / SSH
Access Control:
Per user permission management

POWER

100-240 VAC/2.5A
2000W Dual Power supply

*Future

** Some only for DVB-S2X

TECHNICAL SPECIFICATIONS

SE300 TERMINAL SERIES (SE330 / SE350 IP SATELLITE MODEM)

MODULATOR RF INTERFACE

L-Band

Connector:

N-type (F) 50 Ohm, 10MHz ref out,
±24/±48V - 65W

Frequency Range:

950-2150MHz

Power Level: -30 to 0dBm**Monitor port:** SMA (F) 50 Ohm

DEMODULATOR RF INTERFACE

L-Band

Connector:

N-Type (F) 50 Ohm, 10MHz ref out

Frequency range:

950-2150MHz

Composite power: <-20 dBm**LNB power control:****Voltage:** 13V-18V**Band select:** 22KHz ±4KHz 10MHz ref out

ADDITIONAL INFORMATION

Additional HW interfaces

Power:

Single / Dual power supply
100-240 VAC / 2.5A
± 48 VDC

Data Interface:

4x GbE 10/100/1000

Management port: GbE 10/100/1000**Console:** USB to UART

SW interfaces

Enhancement Features:

ACM – Adaptive Coding & Modulation
AUPC – Automatic Uplink Power Control
AES-256bit link encryption
Multi-access Edge Computing (user defined
OS / Applications)

Baud Rate:

50Ksps to 120Mpsps

Management interfaces:

CLI - Telnet / SSH / Console
Web GUI - HTTP / HTTPS
SNMP - V2 / V3

Environmental

Operating temp.: 0 to 50°C**Storage temp.:** -40°C to 70°C**Operating humidity:**

Up to 85% Non-Condensing

Storage humidity:

Up to 95% Non-Condensing

Cooling: Fan-Right cooling scheme

Mechanical

Size: 19" W x 9.6" D x 1RU (1.72") H

48.3cm W x 24.4cm D x 4.4cm H

Weight: 2.5Kg

SE3000 HIGH DATA RATE SATELLITE MODEM

MODULATOR RF INFRASTRUCTURE

L-Band / IF Band

Connector:

L-Band: SMA (F) 50 Ohm or N-type (F) 50
Ohm, 10MHz ref out, ±24/±48V/120W (opt)

IF Band: BNC (F) 75 Ohm**Freq. range:**

L-Band: 950-2150MHz

IF Band: 50-180MHz

Power level: -30 to 0dBm

DEMODULATOR RF INFRASTRUCTURE

L-Band / IF Band

Connector:

L-Band: F-Type (F) 75 Ohm

IF Band: BNC (F) 75 Ohm

Freq. range / Set resolution:

L-Band: 950-2150MHz

IF Band: 50-180MHz / 10Hz step

LNB control (L-Band)

Voltage: 14V-18V**Band select:** 22KHz ±4KHz, 10MHz ref out

ADDITIONAL INFORMATION

Additional HW interfaces

Baud rate: 0.1-80Mpsps**Power:** 100-240 VAC, 50-60Hz, -48VDC
(Option)**Data Interfaces:**

GbE 10/100/1000

SFP

10MHz Reference

Management and Control Interfaces

Front panel

Serial RS232

Ethernet 10/100

10MHz Out:

Stability: ± 1.0 ppm over 0°C to 50°C
(standard)

Environmental

Operating temp.: 0 to 50°C**Operating humidity:**

Up to 85% Non-Condensing

Storage humidity:

Up to 95% Non-Condensing

Mechanical

Size: 19" W x 18" D x 1.75" H

48.3cm W x 45.7cm D x 4.45cm H

Weight: 4Kg