



# NS330 OPEN / MEC SATELLITE MODEM

## For Enterprise and Broadband Applications

## PRODUCT SHEET

### POWERFUL COMPACT MODEM

NOVELSAT NS330 Open / MEC Satellite Modem is a powerful and compact modem designed for serving multiple broadband applications. Delivering highly integrated and cost-efficient satellite connectivity solution, the NS330 satellite modem is ideal for Point-to-Point applications as well as for Point-to-Multi-Point satellite networks, working with NOVELSAT's data hub. The NS330 utilizes NOVELSAT NS4™ for providing very high-performance transmission and space segment efficiency, as well as supports standard DVB-S2 and DVB-S2X.

### MEC-ENABLED ARCHITECTURE

The NS330 hosts an add-on powerful computing module, providing a dedicated architecture for implementing MEC (Multi-access Edge Computing). Running a MEC platform at the network edge allows for multiple MEC applications such as CDN, low latency services, data caching, IoT aggregation, real-time multimedia analytics and more.

### OPEN DESIGN FOR FLEXIBLE CUSTOMIZATION

The NS330 powerful computing module enables user-defined operating systems, data processing, as well as customized API and user interface. Allowing flexible customization of modem functionality as well as look & feel, the NS330 enables service providers to address different needs and markets.

### COST EFFECTIVE SOLUTION FOR ENTERPRISE APPLICATIONS

Including multi-layer optimization and performance enhancement protocols, the NS330 satellite modem is equipped with 4 Gigabit Ethernet ports, making data transmission more efficient and cost-effective. The NS330 hierarchical QoS mechanisms and dynamic traffic shaping capabilities demonstrate smooth performance of real time applications such as VoIP and Video while insuring minimal jitter and low delay. With true transparent bridging (Layer 2) data remains fully intact from source to destination making it suitable for service providers and mobile network operators to provide full end to end services. In addition, the NS330 can perform as IP router (Layer3) reducing the need for additional equipment. The NS330 supports point-to-point and point-to-multipoint operations and incorporates advanced high-efficiency encapsulation scheme.

### SCALABLE PERFORMANCE

Providing very high performance transmission and space segment efficiency, the NS330 supports NOVELSAT NS4™ waveform as well as standard DVB-S2 and DVB-S2X. High performance receiver technology demonstrates superior resilience to phase noise, adjacent satellite interference, jamming and weather fluctuations, providing higher availability and better efficiency. Coupled with the DUET™ unique carrier echo cancellation technology, the NS330 can simultaneously use the same bandwidth for both uplink and downlink, doubling the traffic at the same satellite bandwidth.

### BEST-IN-INDUSTRY BANDWIDTH REUSE TECHNOLOGY

NOVELSAT NS330 incorporates optional NOVELSAT DUET™ CECTM (carrier-echo-cancellation) band reuse technology. Simultaneously using the same frequency band for both uplink and downlink carriers, the NS330 modem doubles traffic at the same satellite bandwidth. The all-digital, built-in echo canceller provides exceptional performance, delivering lossless uplink and downlink across all modulations and codes. Supporting very high SNR difference between uplink and downlink, NOVELSAT DUET™ offers expansive dynamic range for asymmetric connectivity as well as enhances transmission security by enabling carrier concealment through transmission below noise level.

### HIGHLIGHTS

- Open / MEC satellite modem
- Integrated powerful computing module
- High performance and efficiency
- Highly flexible customization options
- Optional AES encryption
- Scalable symbol rate from 50Ksps to 36Mpsps
- Integrated 4-port GbE LAN switch
- Leading bandwidth reuse - Zero implementation loss



## NOVELSAT NS330 IP SATELLITE MODEM – SPECIFICATIONS

### BASEBAND

#### NS4™

**Inner Code:** BCH

**Outer Code:** LDPC

#### QPSK:

1/4, 1/3, 2/5, 13/30, 7/15, 1/2, 8/15, 17/30, 3/5, 19/30, 2/3, 32/45, 3/4, 4/5, 5/6, 8/9, 9/10

#### 8PSK:

2/5, 13/30, 7/15, 1/2, 8/15, 17/30, 3/5, 19/30, 2/3, 32/45, 3/4, 4/5, 5/6, 8/9, 9/10

#### 16APSK:

2/5, 13/30, 7/15, 1/2, 8/15, 17/30, 3/5, 19/30, 2/3, 32/45, 3/4, 4/5, 5/6, 8/9, 9/10

#### 32APSK:

2/5, 13/30, 7/15, 1/2, 8/15, 17/30, 3/5, 19/30, 2/3, 32/45, 3/4, 4/5, 5/6, 8/9, 9/10

#### 64APSK:

19/30, 2/3, 32/45, 3/4, 4/5, 5/6, 8/9, 9/10

**Frame Length:** 16200, 64800

#### ROF:

"SRRC Like" 2%, 5%, 10%, 15%, 20%, 25%, 35%

#### DVB-S2 / DVB-S2X

**Inner Code:** BCH

**Outer Code:** LDPC

#### QPSK:

1/4, 13/45\*, 1/3, 2/5, 9/20\*, 1/2, 11/20\*, 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10

**8APSK:** 8/9(L)\*, 26/45(L)\*

#### 8PSK:

3/5, 23/36\*, 2/3, 25/36\*, 13/18\*, 3/4, 5/6, 8/9, 9/10

#### 16APSK:

26/45\*, 3/5\*, 28/45\*, 23/36\*, 2/3, 25/36\*, 13/18\*, 3/4, 7/9\*, 4/5, 5/6, 77/90\*, 8/9, 9/10, 1/2(L)\*, 8/15(L)\*, 5/9(L)\*, 3/5(L)\*, 2/3(L)\*

#### 32APSK:

32/45\*, 11/15\*, 3/4, 7/9\*, 4/5, 5/6, 8/9, 9/10, 2/3(L)\*

**64APSK:** 11/15\*, 7/9\*, 4/5\*, 5/6\*, 32/45(L)\*

**128APSK\*\*:** 3/4\*, 7/9\*

**256APSK\*\*:**

29/45-L\*, 2/3-L\*, 31/45-L, 32/45, 11/15-L\*, 3/4

**Frame Length:** 16200, 64800

#### ROF SRRC:

5%, 10%, 15%, 20%, 25%, 35%

\* DVB-S2X

\*\* Optional

### MODULATOR RF INTERFACE

#### L-Band

##### Connector:

N-type (F) 50 Ohm, 10MHz ref out, +24V/+48V/80W

##### Frequency Range:

950-2150MHz in 10Hz steps

**Power Level:** -30 to 0dBm

**Power setting resolution:** 0.1dB

**Power accuracy/ temp. stability:** ± 0.5dB

**Monitor port:** SMA (F) 50 Ohm

##### 10MHz Reference:

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

Aging: ± 1.0 ppm/year (standard)

**Return Loss:** >-12

##### Spurious:

-55dBc in band and out of band at max power

##### Phase noise:

@100Hz–70dBc, @1KHz–80dBc, @10KHz–85dBc @100KHz–95dBc, @1MHz–100dBc

### DEMODULATOR RF INTERFACE

#### L-Band

##### Connector:

N-type (F) 50 Ohm

##### Frequency range:

950-2150MHz in 10Hz steps

**Signal level:** -106+10log(F) (F in MSPS)

Max: -20dBm

**Composite power:** <-20 dBm

**Return loss:** >12dB

**Max. input level (No damage):** 0dBm

##### LNB power control:

Voltage: 14V - 18V

Band select: 22KHz ±4KHz

Max. current: 350mA

### ADDITIONAL INFORMATION

#### Additional HW interfaces

##### power:

100-240 VAC/2.5A

Optional 12VDC

##### Data Interface:

4x Gigabit GbE/100/10 ports

**Management port:** GbE 10/100/1000

**Front panel USB port:** USB A

#### SW interfaces

##### Enhancement Features:

NOVELSAT DUET™ CeC™ (Carrier Echo Cancellation) technology

ACM – Adaptive Coding & Modulation

AUPC – Automatic Uplink Power Control

AES-256 bit link encryption

Carrier ID (CID) compliant

Multi-access Edge Computing (user defined OS / Applications)

##### Baud Rate and Data Rate:

50Ksps to 36Msps

Up to 60Mbps Aggregated

Multi-access Edge Computing

##### IP Features:

Transparent Bridge mode (Layer 2)

Router mode (Layer 3)

IP Encapsulation (NSPE2)

DiffServ and priority-based queuing

Jumbo Frame Support (10,000 Bytes)

##### Management interfaces:

Command line interface - Telnet / SSH Web

GUI - HTTP / HTTPS

SNMP - V2/V3 (with Dual Mode option)

OTA – Over The Air: M&C, Software Upgrade

User define- OS and Application

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

**Weight :** 4Kg