



## NovelSat NS-HUB4000 Multi Receiver IP Satellite Platform

Optimize Data Hub Rack Space – Up to 32 Receivers in a Single 1U Unit

The NovelSat NS-HUB4000 Multi Rx Satellite IP Demodulator Platform is the ideal choice for Point-to-Multipoint satellite network data applications in which the Hub requires a total inbound data rate of up to 2Gbps. At full capacity, the NS-HUB4000 can simultaneously receive up to 32 carriers at up to 60Msps per carrier, saving both rack space and equipment and operating expenses.

The NS-HUB4000 is a major element in the NovelSat NetX Point-to-Multipoint network solutions offering. Combined with the NovelSat NS300X/NS3000 modem series, NovelNet NMS (Network Management System), and NovelSat LIBRA Dynamic Resource Allocation, the NS-HUB4000 contributes to an optimized and efficient Point-to-Multipoint network.

The NS-HUB4000 is a member of the NovelSat Professional Satellite Demodulators family. Like all NovelSat satellite transmission equipment, the NS-HUB4000 supports the NovelSat NS4 satellite waveform, which typically boosts spectral efficiency by 40% to 60% compared with DVB-S2 equipment.

### Optimization for Point-to-Multipoint Data Transmission

The cost-effective NS-HUB4000 includes built-in IP processing features such as the NovelSat NSPE2™, the market's most efficient IP encapsulation scheme, to improve data transmission efficiency. The NS-HUB4000 platform's unique Interfaces include Ethernet 1G/10G, dual power supply ports, and M&C interfaces such as USB ports and an SD card slot for data import/export, software upgrade and many other uses.

The NS-HUB4000 is designed for operators who want to optimize the efficiency of their Hub with high inbound throughput – up to 2 Gbps Ethernet hub infrastructure – together with NovelSat NS4x™, the world's most efficient satellite waveform.



### Key Features:

- Compact, Hub Terminal space saver
- Up to 32 IP Receivers in a single 1U unit
- Dual-active 110v or 220v AC power Interfaces
- Symbol rate of 0.1-120Msps per carrier
- Up to 2Gbps inbound data rate
- NovelSat NS4x™ technology
- NovelSat NSPE2™ – The world's most efficient IP encapsulation scheme
- Modulation: QPSK, 8APSK, 16APSK, 32APSK, 64APSK
- LDPC (Low Density Parity Check)
- Up to 8x F-Type Extended L-Band 950-2150MHz RF input ports
- Advanced M&C interfaces: SD Card Slot, USB Interfaces
- Roll-off Factor: 5%, 10%, 15%, 20%, 25%, 35%

## Redundancy & Backup

As a critical 1U component in a hub with 32 internal receivers (4 internal Rx cards, each with 8 receivers) an efficient redundancy plan is essential. As such, the NS-HUB4000 provides internal and interface (RF, IP, power supply) redundancy, including dual-active 110v or 220v AC power interfaces and power management units.

Backup modes include 1x1 or 2x1 or 3x1, where a single internal Rx card (with 8 receivers) can serve as a backup to any other Rx cards. This architecture is designed to enable fully automatic hot-standby redundancy with no single point of failure.

## NovelSat NS-HUB4000 – Specifications

### Baseband

#### NovelSat NS4x – 64800 Frame Length

Inner code	BCH
Outer code	LDPC
Code rates and modulation:	
<b>QPSK</b>	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
<b>8APSK</b>	5/9 (L), 26/45 (L)
<b>8PSK</b>	3/5, 23/36, 2/3, 25/36, 13/18, 3/4, 5/6, 8/9, 9/10
<b>16APSK</b>	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)
<b>32APSK</b>	32/45, 11/15, 3/4, 7/9, 4/5, 5/6, 8/9, 9/10, 2/3 (L)
<b>64APSK</b>	11/15, 7/9, 4/5, 5/6, 32/45 (L)
<b>Baseband ROF</b>	"SRRC like" 5%, 10%, 15%, 20%, 25%, 35%

#### NovelSat NS4x – 16200 Frame Length

Inner code	BCH
Outer code	LDPC
Code rates and modulation:	
<b>QPSK</b>	1/4, 1/3, 2/5, 7/15, 1/2, 3/5, 2/3, 3/4, 4/5, 8/9, 11/45, 4/15, 14/45, 7/15, 8/15, 32/45
<b>8PSK</b>	3/5, 2/3, 3/4, 5/6, 8/9, 7/15, 8/15, 26/45, 32/45
<b>16APSK</b>	2/3, 3/4, 4/5, 5/6, 8/9, 7/15, 8/15, 26/45, 3/5, 32/45
<b>32APSK</b>	3/4, 4/5, 5/6, 8/9, 2/3, 32/45
<b>Baseband ROF</b>	"SRRC like" 5%, 10%, 15%, 20%, 25%, 35%

### Input Interfaces

#### L-Band Input

Connector	F-Type (F) 75 ohm
Frequency range	950-2150MHz in 1Hz steps
Level	-70+10log(F)/-20 dBm (F in MBAUD)
Composite power	< -20dBm
Max. input level	0 dBm

### Additional Information

#### Interfaces

<b>SW interfaces</b>	Command line interface Web based GUI SNMP V3
<b>M&amp;C Interfaces</b>	CLI management USB port USB for generic use (e.g., SW upgrade) SD card slot
<b>Data Interfaces</b>	Alarm Dry contact relay output ports  Ethernet Management port Ethernet data port Up to 8x F-Type L band RF input ports
<b>Power</b>	Ethernet 1G/10G SFP (Optional)  Dual active-active 110v or 220v AC power sockets with dual load-sharing power supplies

#### Physical & Environmental

<b>Prime power</b>	100-240 VAC, 50-60Hz, 30 to 100W Max
<b>Weight</b>	4Kg (8.8 lbs)*
<b>Size</b>	19" W x 18" D x 1.75" H 48.3 x 45.7 x 4.45 cm *
<b>Operating temp.</b>	0 to 50°C *
<b>Storage temp.</b>	-40°C to 70°C *
<b>Operating humidity</b>	Up to 85% Non-Condensing *
<b>Storage humidity</b>	Up to 95% Non-Condensing *
<b>Operating Altitude</b>	Up to >2500 m *
<b>Certifications</b>	EMC:EN55022,EN55024,EN6100-3-2/3, FCC CFR 47-part 15 Safety: CB, TUV, CE, IEC 60950-1: 2005 (2nd Ed)+Am 1:2009

\*Preliminary figures



**Related products:** NovelSat XneT Point-to-Multipoint Data Network Solution, NovelSat NS3000 Professional High-Data Rate Satellite Modem, NovelSat NS300X IP Satellite Modem, NovelSat NS1000 Satellite Modulator, NovelNet Network Management System

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