

NovelSat NS3000 IP Satellite Modem

NovelSat
Making Space in Space



Widest Support for Customer Needs

The NovelSat NS3000 satellite modem offers several hardware and software options to accommodate a wide range of customer needs. It supports point-to-point as well as point-to-multipoint links and incorporates the NovelSat high-efficiency NSPE™ encapsulation scheme.

Best Performance

The NS3000 offers a dramatic performance upgrade over DVB-S2 and any other available equipment. This high performance is achieved through NovelSat NS3™ technology coupled with the capacity to transmit using a single carrier over a 84MHz channel. In addition, the NS3000 incorporates advanced NovelSat DUET™ Channel-Echo-Cancellation™ technology and a built-in receiver equalizer that further improves performance over saturated channels.

Superior Scalability, Economics and Security

The NS3000 delivers 100Kbps to world record 850Mbps on a single modem while reducing dish and HPA sizes or required satellite bandwidth. The NS3000 offers a fully integrated IP solution incorporating routing capabilities, bandwidth management and an advanced QoS mechanism. Further utilization of allocated bandwidth can be accommodated using NovelSat optimized ACM mode.

The NS3000 comes with IF/extended L-Band input/output interfaces and can support BUC feeders and LNB, offering a compact and cost effective solution in a space-saving 1U package. The NS3000 is also CID compatible.

NovelSat DUET transmits the uplink and downlink carriers on the same frequency by canceling the transmitter signal echo to enable the remote transmission to be received. This enhances transmission security by making any other modem perceive the mixed signal as noise.

Key Features:

- NovelSat NS3 technology
- Scalable from 100Kbps to 850Mbps (bidirectional 425Mbps) with built-in NovelSat DUET™ Channel-Echo-Cancellation
- 10-15dB stronger jamming immunity
- Up to 80Msymbols/sec
- Optimized ACM mode
- NovelSat DDC™ - Dynamic Distortion Compensator (non-linear processing mode for saturated signals)
- IP routing/switching/bridging capabilities
- Advanced QoS
- NSPE IP Encapsulation
- DVB-S2 (EN 302 307) compliant
- DVB-S, DSNG (EN300-421, EN301-210) transmission compliant
- QPSK, 8PSK, 16APSK, 32APSK, 64APSK
- Extended L-Band 950MHz-2150MHz
- L-Band monitoring output
- Gigabit Ethernet, E1/T1, ASI interfaces
- 24V/48V integrated BUC feeder
- Supports N+1 redundancy
- Carrier ID (CID) compatible
- Secured transmission



The NS3000 is the world's most scalable satellite modem, with bi-directional data rates from 100Kbps to 850Mbps. It also offers the most compelling ROI in the industry. The NS3000 incorporates state-of-the-

art NovelSat NS3 satellite transmission technology and interfaces directly with IP infrastructure via a Gigabit Ethernet and E1/T1-G.703 interfaces for cellular backhaul applications.

NovelSat NS3000 IP Satellite Modem – Specifications

Specifications

Parameter	DVB-S2	NovelSat NS3	Features
QPSK	1/4, 1/3, 2/5, 1/2 3/5, 2/3, 3/4, 4/5, 5/6, 8/9, 9/10	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	Maximum rate: bidirectional 850Mbps (2x425 Mbps) Symbol rate: 0.1-80MSPs
8PSK	3/5, 2/3, 3/4, 5/6, 8/9, 9/10	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	DVB-S, DSNG transmission compliant Spectral inversion: normal, inverted
16APSK	3/5, 2/3, 3/4, 5/6, 8/9, 9/10	2/5, 13/30, 7/15, 1/2, 8/15, 17/30, 33/5, 19/30, 2/3, 32/45, 3/4, 4/5, 5/6, 8/9, 9/10	IP Enhancements: - Bridge mode (Layer 2)/ VLAN switching (Layer 2)/ Router mode (Layer 3) - IP Encapsulation (NSPE) - QoS (Quality Of Service)
32APSK	3/4, 4/5, 5/6, 8/9, 9/10	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	ACM – Adaptive Coding & Modulation AUPC – Automatic Uplink Power Control DDC – Dynamic Distortion Compensator OTA – Over The Air: M&C, Software Upgrade
64APSK	N/A	19/30, 2/3, 32/45, 3/4, 4/5, 5/6, 8/9, 9/10	Advanced encryption Carrier ID (CID) compliant
Frame length	16200, 64800	16200, 64800	
ROF	SRRC 5%, 10%, 15%, 20%, 25%, 35%	"SRRC Like" 5%, 10%, 15%, 20%, 25%, 35%	

Modulator RF Ports

L-Band	
Connector	SMA (F) 50 Ohm or N-type (F) 50 Ohm +24/+48V/120W (opt)
Freq. range	950-2150MHz in 10Hz steps
Power level	-30 to 0dBm
Power setting resolution	0.1dB
Power accuracy / temp. stability	±0.5dB/±0.5dB
Return loss	>12dB (18dB Optional)
Spurious	-55dBc in band and out of band at max power
Phase noise	@100kHz-70dBc, @1kHz-80dBc, @10kHz-85dBc @100kHz-95dBc, @1MHz-100dBc

Demodulator RF Ports

L-Band	
Connector	F-Type (F) 75 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 (18dB Optional)
Max. input level	0dBm
LNB power control:	
Voltage	11.5-14 V (Vert. Pol.), 16-19V (Horiz. Pol.)
Band select	22KHz ±4KHz
Max. current	350mA

IF-Band	
Connector	BNC (F) 75 Ohm
Freq. range	50MHz – 180MHz in 10Hz steps
Power level	-30 to 0dBm
Power setting resolution	0.1dB
Power accuracy / temp. stability	±0.5dB/±0.5dB
Return loss	>12dB (18dB Optional)
Spurious	-55dBc in band and out of band at max power

IF-Band	
Connector	BNC (F) 75 Ohm
Frequency range	50MHz – 180MHz in 10Hz steps
Signal level	-106+10log(F) (F in MSPS) Max: -20dBm
Composite power	<-20 dBm
Return loss	>10dB (18dB Optional)
Max. input level	0dBm
LNB power control:	
Voltage	11.5-14 V (Vert. Pol.), 16-19V (Horiz. Pol.)
Band select	22KHz ±4KHz
Max. current	350mA

Additional Information

Monitor and Control Interfaces		Physical	Environmental
SW interfaces	Command line interface Web based graphic user interface SNMP V3	Weight Size	Prime power
M&C Interfaces	Front panel Serial RS232 GbE 10/100	4Kg (8.8 lbs) 19" W x 18" D x 1.75" H 48.3 x 45.7 x 4.45 cm	100-240 VAC, 50-60Hz, -48VDC (Option)
Data Interfaces	GigaBit 10/100/1000BaseT 2 x ASI input & 2 x ASI output E3 / G.703 Up to 4 x E1/T1 Interfaces	10MHz Clock Stability	Operating temp. Storage temp. Operating humidity Storage humidity
		± 1.0 ppm over 0°C to 50°C (standard) ± 0.03ppm over 0°C to 50°C (option) ± 1.0 ppm/year (standard) ± 0.075 ppm/year (option)	0 to 50°C -40°C to 70°C Up to 85% Non-Condensing Up to 95% Non-Condensing



Related products: NovelSat NS2000 Satellite Demodulator, NS1000 Satellite Modulator
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