NovelSat
NS300 Professional Satellite Modem

NovelSat
Making Space in Space

Cost-effective Satellite Data Transmission

The NovelSat NS300 Professional Satellite Modem is the natural choice for data applications that require satellite transfer rates of up to 30Mbps. In full duplex mode, the NS300 can simultaneously send and receive a total of 60Mbps per modem.

The NS300 is a member of the NovelSat Professional Satellite Modem series along with the NS3000 Professional High-Data Rate Satellite Modem (up to 850Mbps). Like the NS3000, DVB-S2 is the basic satellite transmission standard in the NS300 modem. The NS300 and all NovelSat equipment also support DVB-S, DVB-S2 with 5% Roll-off Filter (ROF), DVB-S2X* and NovelSat NS3.

Built for Data Transmission

The NS300 modem includes built-in IP processing features to make data transmission more efficient and cost-effective. The NovelSat NS300 supports point-to-point and point-to-multipoint links and incorporates the NovelSat high-efficiency NSPE™ encapsulation scheme. The NS300 integrated IP processing unit supports a wide range of features such as advanced QoS, transparent bridging (Layer 2), VLAN switching (Layer 2), routing mode (Layer 3) and header and payload acceleration.

Equipped for data transmission, the NS300 comes with 4 E1/T1 interfaces for cellular backhaul, 2 ASI interfaces for video and Gigabit 1000Base-T. It also has built-in hardware support for LDPC advanced FEC, NovelSat NS3 and NovelSat DUET CeC (carrier-echo-cancellation). All this makes the NS300 the ideal low-data-rate modem for cellular backhaul, IP trunking and other data services applications, not to mention a valuable asset for broadcasters' DSNG units.

Scalable Performance

The NS300 platform offers a wide range of performance boosting options including DVB-S2 with 5% ROF, ACM/VCM, AUPC (Automatic Uplink Power Control), Carrier ID (CID) compliance and Dual channel support for ASI & IP or two ASI data transmissions. All of these options work with both DVB-S2 and NovelSat NS3 configurations.

When you upgrade to NovelSat NS3 transmission technology, the NS300 typically boosts spectral efficiency by 40% to 60% compared with DVB-S2 equipment. NovelSat NS3 also adds superior resilience to jamming, interference, phase noise and weather fluctuations. For additional savings in operational costs, add optional NovelSat DUET CeC to double the bandwidth available on a single carrier.

These and other unique technologies give the low-cost, high-performance NovelSat NS300 Professional Satellite Modem the highest performance and most compelling ROI for businesses with satellite data transmission needs.

Key Features:

- Scalable from 100Kbps to 60Mbps (30Mbps x2)
- DVB-S2 (EN 302 307) & DVB-S2X* compliant
- DVB-S, DVB-DSNG (EN300-421, EN301-210) transmission compliant
- Symbol rate 0.1-25Msps
- NovelSat NS3™ technology
- Modulation: BPSK, QPSK, 8APSK, 16APSK, 32APSK, 64APSK
- LDPC (Low Density Power Check)
- Roll-off Filter: 5%, 10%, 15%, 20%, 25%, 35% with both DVB-S2 and NovelSat NS3
- NovelSat DUET™ CeC™ (carrier-echo-cancellation) technology
- Dual Band Support (IF-Band 50-180MHz & Extended L-Band 950-2150MHz)
- 10-15dB stronger jamming immunity
- Optimized ACM mode
- IP Processing Enhancements
  - VLAN switching (Layer 2)/ Router mode (Layer 3)
  - NSPE™ IP Encapsulation
  - Advanced QoS (Quality of Service)
  - IP Transparent Bridging
  - Jumbo frame support
  - Header Compression
  - WAN Acceleration (TCP, Payload Acceleration)
  - Gigabit Ethernet (GbE), Up to 4 E1/T1 interfaces, SFP

- 2 ASI interfaces
- Dual Channel Support (ASI & IP or 2 ASI streams)
- L-Band monitoring output
- 24V/48V integrated BUC feeder
- Supports N+1 redundancy
- Carrier ID (CID) compatible
- Secured transmission

- AUPC (Automatic Uplink Power Control)
- Technology Agnostic Network Management System
- Over-the-Air (OTA): Management & Control and Software upgrades
- Compatible with all NovelSat satellite equipment (modulators, demodulators, modems)

NovelSat NS300 Professional 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 60Mbps (2x30 Mbps) Symbol rate: 0.1-25Msps DVB-S, DVB-S2, DVB-S2 with 5% ROF, DVB-S2X*, DVB-DSNG & NovelSat NS3 compliant NovelSat DUET CeC (Carrier echo cancellation) technology
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	IP Enhancements: - Bridge mode (Layer 2)/ VLAN switching (Layer 2)/ Router mode (Layer 3)

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 Encapsulation (NSPE)
			  - QoS (Quality of Service)
			  - Header Compression

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	- WAN Acceleration (TCP, Payload Acceleration) ACM – Adaptive Coding & Modulation AUPC – Automatic Uplink Power Control
64APSK	N/A	19/30, 2/3, 32/45, 3/4, 4/5, 5/6, 8/9, 9/10	OTA – Over The Air: M&C , Software Upgrade
Frame length	16200, 64800	16200, 64800	Data interfaces: GbE (1000Base-T), 4 E1/T1, 2 ASI Tx/Rx pairs, SFP
ROF	SRRC 5%, 10%, 15%, 20%, 25%, 35%	"SRRC Like" 5%, 10%, 15%, 20%, 25%, 35%	Carrier ID (CID) compliant

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
Spurious	-55dBc in band and out of band at max power
Phase noise	@100Hz–70dBc, @1KHz–80dBc, @10KHz–85dBc @100KHz–95dBc, @1MHz–100dBc

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

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
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
Frequency range	50MHz – 180MHz in 10Hz steps
Signal level	-106+10log(F) (F in MSPS) Max: -20dBm
Composite power	<-20 dBm
Return loss	> 10dB
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	4Kg (8.8 lbs) 19" W x 18" D x 1.75" H 48.3 x 45.7 x 4.45 cm	Prime power	100-240 VAC, 50-60Hz, -48VDC (Option)
M&C Interfaces	Front panel Serial RS232 GbE 10/100	10MHz Clock Stability	± 1.0 ppm over 0°C to 50°C (standard) ±0.03ppm over 0°C to 50°C (option)	Operating temp. Storage temp. Operating humidity Storage humidity	0 to 50°C -40°C to 70°C Up to 85% Non-Condensing Up to 95% Non-Condensing
Data Interfaces	GigaBit 10/100/1000Base-T 2 x ASI input & 2 x ASI output Up to 4 x E1/T1 Interfaces SFP-ready	Aging	± 1.0 ppm/year (standard) ± 0.075 ppm/year (option)		

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